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IN THE

Supreme Court of the United States

OCTOBER TERM, 1980

No. 80-

VAN DYK RESEARCH CORPORATION,
Petitioner

v.

XEROX CORPORATION,
Respondent

PETITION FOR A WRIT OF CERTIORARI TO THE UNITED STATES COURT OF APPEALS FOR THE THIRD CIRCUIT

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February 11, 1981

QUESTION PRESENTED

The District Court found that Xerox Corporation ("Xerox") had not committed the substantive offense of monopolization in violation of Section 2 of the Sherman Act; that assuming a Section 2 violation, Van Dyk Research Corporation ("Van Dyk") had not established the fact of damage; and that assuming a Section 2 violation and the fact of damage, Van Dyk had failed to establish the amount of damage. The Court of Appeals, in the face of a record which Van Dyk claimed demonstrated that the District Court's findings of fact were clearly erroneous, avoided affirming the District Court on the liability issue under Section 2 and chose instead to rest its affirmance solely "on the plaintiff's failure to show a causal relationship between its injury and the alleged antitrust violations." (App. A, p. 8a).

The question presented is:

Assuming (as did the Court of Appeals) that Van Dyk established that Xerox, in an unlawful effort to extend its patent monopoly, abused the United States patent system by securing patents covering old technology, described in large part in expired and expiring Xerox patents which were not disclosed by Xerox to the United States Patent and Trademark Office ("Patent Office"), did the Court of Appeals properly determine that the District Court's Findings of Fact concerning "fact of damage" were not clearly erroneous, where plaintiff's burden was met once it established that Xerox' illegal patent acquisitions were "a material cause" of injury? *Zenith Radio Corporation* v. *Hazeltine Research, Inc.*, 395 U.S. 100, 114 n.9 (1969).[1]

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[1] Pursuant to Supreme Court Rule 28.1, Van Dyk, a New Jersey corporation, states that it has no parent corporation, no affiliate corporations, and has two subsidiary corporations: Chesapeake Scientific Apparatus Corporation and Chesapeake Corporation, both incorporated in the State of New Jersey.

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OPINIONS BELOW

The Opinion of the Court of Appeals, from which review is sought, is reported in 631 F.2d 251 (3d. Cir. 1980) and in 1980 Trade Cases ¶63,563. (Appendix A to this petition, pp. 1a-15a). The Opinion of the United States District Court for the District of New Jersey is reported in 478 F.Supp. 1268 (D.N.J. 1979) and in 1979 Trade Cases ¶62,996. (Appendix B hereto, pp. 16a-126a).[2]

[2] The Order of the District Court accompanying its decision, dated August 20, 1979, is Appendix C hereto. (p. 127a). The Order of the Court of Appeals, affirming the District Court's decision, is Appendix D (p. 128a), and the Order of the Court of Appeals denying Van Dyk's petition for rehearing and rehearing *en banc* is Appendix E (p. 129a).

JURISDICTION

The Court of Appeals entered judgment on September 30, 1980 (App. D). A timely petition for rehearing and rehearing *en banc* was denied on October 30, 1980. (App. E).[3] The jurisdiction of this Court is invoked under 28 U.S.C. 1254(1).

STATUTES INVOLVED

Sherman Act, Section 2, 15 U.S.C. §2 provides in pertinent part:

> Every person who shall monopolize, or attempt to monopolize, or combine or conspire with any other person or persons, to monopolize any part of the trade or commerce among the several States, or with foreign nations, shall be deemed guilty of a felony. . . .

Clayton Act, Section 4, 15 U.S.C. §15 provides:

> Any person who shall be injured in his business or property by reason of anything forbidden in the antitrust laws may sue therefor in any district court of the United States in the district in which the defendant resides or is found or has an agent, without respect to the amount in controversy, and shall recover threefold the damages by him sustained, and the cost of suit, including a reasonable attorney's fee.

STATEMENT OF THE CASE

Petitioner Van Dyk is a small manufacturer of plain paper copying machines and supplies located in Whippany, New Jersey. Van Dyk was founded in 1964 and, in the mid-1960s, using capital generated by its supply business, it began development of a plain paper copier which ultimately became the

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[3] On January 5, 1981, this Court granted Van Dyk's motion for an extension of time within which to file its petition for *certiorari* to and including February 11, 1981.

high-speed, high-volume Van Dyk 4000. Van Dyk placed pre-production model Van Dyk 4000 copiers with customers in early 1972 and by mid-1973 had produced some sixty-six high-speed Van Dyk 4000 machines in a production facility. Until September, 1974, the Van Dyk 4000 was the fastest plain paper copier on the market. The predominant competition for the Van Dyk 4000 is the Xerox high-speed family of copiers, and Xerox admitted in contemporaneous documents that the Van Dyk 4000 was a major threat to Xerox.[4] The Van Dyk 4000 was considered within the investment community to be "the most advanced [copier] now available". (PX 41).

Xerox recognized that the Van Dyk 4000 was "the first visible competitive thrust into the heartland of Xerox profits," i.e., the 3600 family of high volume copiers, which generated Xerox' greatest revenues and profits (A. 492, 1000), and that Van Dyk was, with IBM and 3M, Xerox' most formidable competition. (PX 69 at 443543). Nevertheless, Xerox reported from as early as 1970, through 1975, that Van Dyk would be "in trouble" (PX 93) unless it could secure the capital necessary to compete (PX 93; see PX 69 at 443595, PX 109 at 2, PX 453 at 7; PX 906 at 054694).[5]

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[4] (A. 65-71, 492, 681-82, 706-07, 747, 1000, 1011-20, 1023-29, 1034-35, 1042, 1098-99, 1954-55; PX 31, 69, 71, 74-77, 83, 94, 101, 102, 652, 833 at 19, 1235, 1749 at 1-2; DX 1092, 1895). "A" references herein are citations to the Joint Appendix on appeal. "PX" and "DX" references are to the parties' trial exhibits (also included in the Joint Appendix) and "Tr." references, unless otherwise identified, are to pages of trial transcript not included in the Joint Appendix on appeal.

[5] During the period 1973-75 Xerox reported that the Van Dyk 4000 was a "definite threat", "throughout all our major accounts," (PX 86) including particularly Xerox' largest accounts, American Telephone & Telegraph Company and the United States Government (PX 83-84, 86; A. 484-93, 969-70, 1000-01). The machine was Xerox' "most severe problem" in the Middle Atlantic States (PX 67). Xerox' reports stressed the substantial (16% to nearly 50%) rental price advantages of Van Dyk 4000 over comparable Xerox equipment. Vice-President Reiser demanded that Xerox act to eliminate Van Dyk by means of patent litigation (PX 119, 120). Reiser's demand for patent litigation to enjoin competition by Van Dyk had, according to the District Court, the sound of "substantial urgency." (A. 748)

(*footnote continues*)

In 1974, Xerox' "Strategy Task Force" reported that Van Dyk was "resource starved" (PX 69 at 443595) but recognized the Van Dyk threat:

> [T]he greatest impact on Xerox has come from the new high volume plain paper copiers introduced by 3M, IBM, and Van Dyk.**** Although Van Dyk is a very small company, they have apparently developed *a very strong product* that could be extremely competitive with our 2400/3600/7000.**** The competitive group has forecast a placement level of 900 units in 1974 and 1600 units in 1975 and 1976. (PX 69 at 443541, 443543) (emphasis added).

At trial, plaintiff offered evidence to establish that its inability to secure necessary capital to compete effectively against Xerox (after it had exhausted its own funds in the development of a prototype Van Dyk 4000) was the proximate result of Xerox' unlawful patent monopoly, which discouraged major firms from purchasing and distributing Van Dyk's copier, or from investing in Van Dyk and providing it with the necessary funds required to remain a competitive factor in the marketplace.

What Van Dyk claimed were Xerox' unlawful patent practices were litigated in *Van Dyk* v. *Xerox* and are also at issue in the United States Patent Office, pursuant to the Order of the Hon. Herbert Stern, J., in *Xerox Corporation* v. *SCM*

(*footnote continued*)

(Xerox' effort to employ the patent weapon against Van Dyk is reflected in many documents from 1972-75; e.g., PX 11, 34, 96, 98, 104, 119, 122, 124, 652 at 2; see A. 493).

In 1974, Xerox reported on the excellence of Van Dyk President Dr. Maxwell A. Pollack's leadership (PX 906 at 054694). Similarly, in mid-1974, when Van Dyk (represented by Merrill Lynch Hubbard Inc. a subsidiary of Merrill Lynch Pierce Fenner & Smith, hereinafter "Merrill Lynch") unsuccessfully sought to raise substantial funds through a private offering, representatives of White, Weld & Co. reported that Dr. Pollack was "an extremely tough competitor to have come this far" against Xerox, that Van Dyk's recent financial figures were "impressive" and that Van Dyk was "operating at one-third of capacity, but . . . it could substantially increase production if funds were available." (PX 1128).

Corporation v. *Van Dyk Research Corporation*, Civil Action No. S-76-1880, (D. N.J.), the patent action by Xerox against Van Dyk and Van Dyk's former customer, SCM Corporation ("SCM"). In both this antitrust action and in the patent action, Van Dyk maintained that Xerox had abused the United States patent system in unlawfully seeking to extend its patent monopoly when it applied for and secured new patents covering old xerographic technology.[6] In the patent action, by Order dated June 6, 1979, the District Court, after considering Van Dyk's evidence in the antitrust action, granted Van Dyk's motion to compel Xerox to submit its patents to the Patent Office for consideration of Van Dyk's claim that Xerox failed to disclose to the Patent Office prior art, principally prior expired or expiring Xerox patents, which made the claimed Xerox "inventions" obvious, unpatentable and in the public domain. Thereafter, between January 16 and February 7, 1980, after the District Court in the antitrust action had accepted *in toto* Xerox' contention that its patents were lawfully acquired, all of the patents which Xerox claimed went to the heart of xerography in the 1960s, as well as all claims in those patents, were rejected by the Patent Office in nine separate initial actions by seven different Patent Examiners.[7]

As of the date of this Petition, the status of these Xerox patents in the Patent Office is as follows: Seven of the critical Xerox patents have received final rejections from the Patent

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[6] Testimony concerning the nine critical patents was offered by Xerox in the antitrust action; these patents were later described by Xerox to the District Court in the patent action as patents which *"go to the heart in the 1960s of making a practical, commercially effective Xerographic reproducing machine that would operate at the speeds that were required and necessary."* (Tr. in *Xerox* v. *SCM* v. *Van Dyk*, April 9, 1979, p. 17; emphasis added).

[7] The District Court's unreported Order in the patent case, dated June 6, 1979, is contained in a 211-page printed volume entitled "Unreported Decisions of the United States District Court for the District of New Jersey and the United States Department of Commerce, Patent and Trademark Office," filed by Van Dyk in the Third Circuit. Because of the length of that volume, its availability with the Appeal Appendix at the Court of Appeals, and the fact that inclusion of these decisions in the Appendix to this petition is not required by Supreme Court Rule 21.1(k), Van Dyk has not included this additional 211 pages (and the subsequent Patent Office decisions also discussed in this petition) in the Appendix hereto.

Examiners. Xerox has appealed three of these actions and has filed continuation reissue applications respecting the other four. The Patent Examiner who examined one of the two remaining Xerox patents issued an opinion that the Xerox patent was invalid because of prior art which rendered the claimed "invention" obvious. In the reissue proceeding respecting the ninth Xerox patent, relating to an oil wick, the Patent Examiner reversed his initial decision and held that the claims were not obvious; however, the proceedings were unilaterally terminated by Xerox (by express abandonment of the reissue application) before a full hearing had been concluded. Thus, as of this date, eight of the nine patents which Xerox claimed covered critical technology, which would prevent anyone, including Van Dyk, from making a commercially viable plain paper copier, have been found invalid by the Patent Examiners. In decisions which directly support Van Dyk's claims, and corroborate the evidence in the antitrust trial, patents which Xerox employed to extend its monopoly were found to have been obtained by Xerox after it had failed to make relevant disclosures to the United States Patent Office—disclosures which rendered the patented inventions obvious and in the public domain.[8]

Xerox' strategy at trial of the antitrust case was to suggest to the District Court that Van Dyk and its President, Dr. Pollack, had appropriated important Xerox innovations protected by the nine critical xerographic patents, recognizing that acceptance of this position would adversely influence the District Court's view of Van Dyk and Van Dyk's position on other important issues, including not only "fact of damage," but every other essential issue as well. The District Court's findings relating to the patent issue accepted the Xerox proffer:

> 194. Van Dyk has failed to prove its allegation that Xerox has obtained by application or acquisition a huge portfolio of patents with the intent or purpose to dis-

[8] It is noteworthy that, due to "the magnitude of patent applications filed", the United States Patent Office is "ill-equipped to determine with any certainty that patents it issues are for inventions that are new, useful and unobvious." McKeown, "The FTC v. Xerox Litigation: Implications for the United States Patent System," 24 Cath. U.L. Rev. 1, 16 (1974).

courage and hinder the entrance of new competitors into the market. *I find that almost all Xerox patents are the direct outgrowth of Xerox' outstanding research and development which had as its purpose the improvement of its products and development of new ones. Xerox did not stockpile patents to intimidate others. Xerox did not secure patents fraudulently or on trivial inventions, nor did it institute patent infringement litigation in bad faith to inhibit legitimate competition.* (App. B, p. 73a) (emphasis added).[9]

231. *Xerox' witnesses described each of these nine Xerox patents* [which Van Dyk was alleged to have infringed] *in detail at the trial and testified as to the use of the inventions described in each patent in Xerox' machines and in the Van Dyk 4000.**** [T]here is, based on my own viewing of the subject matter involved, including the nine*

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[9] Dr. Pollack's and other testimony indicating that Xerox was "almost inventing the same thing over and over again" was ignored by the District Court. (See, e.g., Tr. 2168). Xerox documents describing its plan to extend its patent monopoly by reinvention were also completely ignored. See, *infra*. The Patent Examiners were not fooled. For example, Xerox called at the antitrust trial only one "inventor", John Rutkus, who had secured one of the critical patents. Rutkus had worked beginning in 1955 with a Mr. Mayo, Manager of Machine Development at Xerox (Tr. 3319). After the antitrust trial, Rutkus' patent was rejected by the Patent Office, the Patent Examiner observing that Rutkus had not cited Mayo's prior patent in his application and that the "particular arrangement of various elements (described in the Mayo patent) is strikingly similar" to that shown in diagrams in the Rutkus patent. (See Unreported Decisions, p. 51). Rutkus was aware of Mayo's (his superior's) patent when Xerox applied for the Rutkus patent. Judge Lacey had asked Rutkus:

THE COURT: Let me ask you this. Once a patent was obtained the Patent Department, I assume, somebody in the Patent Department would probably get word at an early stage.

THE WITNESS: Yes.

THE COURT: Now, did word of that then get passed down to Research and Development that "We now have a patent in this area"?

THE WITNESS: Oh, yes. (Tr. 3478)

> *patents and the Van Dyk equipment, sufficient [sic] to warrant a reasonable person to say that an infringement suit would not have been frivolous.* (App. B, p. 81a) (emphasis added).

As indicated, Dr. Pollack's testimony that Xerox' patents represented reinventions, and the Xerox documents which described Xerox' abuse of the patent system, were simply ignored by the District Court.[10]

The Patent Office rejections of Xerox' critical "inventions" as obvious and therefore unpatentable were predictable in view of admissions contained in Xerox documents, which the District Court ignored. Thus, upon the expiration of the last basic xerographic patent in 1961, Xerox reported that it "possesses hundreds of patents and has hundreds more patent applications

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[10] Dr. Pollack, a scientist and registered patent agent, had studied Xerox' patent portfolio, observed that the basic patents had long since expired, recognized that many of Xerox' other patents were reinventions, and concluded that Van Dyk could successfully build a plain paper copier. (The first Van Dyk 4000 was marketed eleven years after the last basic xerographic patent had expired.)

The Federal Trade Commission ("FTC"), after a four-year investigation of Xerox, reached the same conclusion in *In Re Xerox Corporation*, Docket No. 8909, in which the FTC alleged in its summary of facts it intended to prove:

> 14(b)-1. Xerox has established a program expressly intended to re-create and maintain patent protection comparable to the protection afforded by the expiring basic Carlson patents.
>
> 14(b)-2. Pursuant to Xerox's program to re-create its patent position, Xerox created the proliferation of patents described in Paragraphs 14(c)-1 through 14(c)-6.
>
> * * * *
>
> 14(c)-1. Many of the hundreds of patents in Xerox's portfolio claim minor or trivial variations on existing art or overlap portions of other Xerox patents.

In July, 1975, Xerox elected not to contest the FTC's charge of patent abuse and entered into a Consent Decree which required Xerox to grant licenses of plain paper copier patents at "no or minimal royalties" and which also required "forgiveness by Xerox of past infringement liability of the firms taking a Consent Decree license." (See CCH Trade Reg. Rep., FTC Complaints and Orders [1973-1976], ¶20,955 at p. 20,802).

and has thus *reestablished* a powerful patent structure which affords it protection almost equaling what it had during a period of basic patent coverage." (PX 193, emphasis added). Three years later, in 1964, Xerox issued its "One, Five Year Plan" which again stressed the extension of Xerox' patent monopoly: "[W]e must recognize the result of passage of years and devote our best efforts toward a broadened network of patent protection as these important patents expire." (PX 315 at 3). Annual quotas for the acquisition of patents were ordered by Xerox management and explicit directions were given that patents be secured in areas where old patents were expiring:

> [W]e are conscious of the fact that our basic improvement patents in some of these fundamental steps will have expired in about five years. *Thus, one objective of a five-year program is to strengthen our patent protection in general areas of expiring patents* . . . . (PX 315 at 10; emphasis added).

Following institution of the Plan and Xerox' extraordinary patent filing program, perplexed Battelle Memorial Institute scientists observed that:

> "Patents have been assigned at a tremendous rate to Xerox. However, they probably have little effect on research planning . . . . " (PX 121)

By 1967 Xerox was able to report that "we have been quite successful in *extending* important patent coverage after basic coverage of the orginal xerographic patents has expired," a boast made fully six years after the last basic xerographic patents had expired. (PX 201 at 24, emphasis supplied).[11]

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[11] The patents considered and rejected by the Patent Office were secured by Xerox at the same time it was seeking to reestablish patent protection and reporting that it had "been quite successful in extending important patent coverage after basic coverage of the original xerographic patents has expired." The failure of Xerox to disclose to the Patent Office its own expired and expiring patents when filing for and securing new patents could not have been inadvertent. After reviewing Van Dyk's submissions in the patent action, the Assistant Commissioner for Patents decided *sua sponte*:

> From a review of the application files *it appears that questions may be present as to conduct by or on behalf of* [*Xerox*] as well as the

(*footnote continues*)

The rejections by the Patent Office were not received until after the District Court in the antitrust action had issued its findings of fact. Since Van Dyk had already appealed the District Court's decision, it promptly brought to the attention of the Court of Appeals the decisions of the United States Patent Office, in accordance with the procedure approved in *Landy* v. *Federal Deposit Insurance Corporation,* 486 F.2d 139, 150-151 (3rd Cir. 1973), *cert. denied,* 416 U.S. 960 (1974).[12]

(*footnote continued*)

patentability of the claims. In view of the fact that any decision as to conduct will involve considerations as to the patentability of the claimed subject matter, it is appropriate that examination before the Examiner as to patentability occur before consideration of any possible questions as to conduct. (Decision Returning Applications for Examination, December 21, 1979, in "Unreported Decisions," p. 9) (emphasis added).

[12] The British Monopolies and Mergers Commission ("Monopolies Commission") also concluded that patent practices in the United Kingdom directed by Xerox were carried on "for the purpose of preserving monopoly conditions"; that "[Rank Xerox] has operated against the public interest"; and that "the development of competition has been restricted and delayed by the patenting activity of Rank Xerox. . . ." ("Report of British Monopolies and Mergers Commission on Indirect Electrostatic Reprographic Equipment" [1976] at pp. 95, 105). The Monopolies Commission also observed:

> [I]t was suggested to us that the group [Xerox and Rank Xerox] had discouraged potential competitors not only by taking out patents primarily designed to extend the protection and scope of existing patents but also by taking out patents which were open to objection on the ground of obviousness or triviality. We did not attempt the costly, detailed and time-consuming technical examination which would have been required to evaluate such suggestions.
>
> * * * *
>
> A large portfolio of patents impedes and delays the emergence of competition. The mere cost of a technical examination of a large portfolio of patents is intimidating. As the Committee of Experts on Restrictive Business Practices of the OECD said in 1972 in their report on Restrictive Business Practices Relating to Patents and Licenses:
>
> > 'A large company, particularly a combination of large companies, holding hundreds or thousands of patents relating to important technology may be able to exercise dominance in an industry and subject it to excessive conditions or royalties. The tremendous number of patents held by large companies may, in itself, prevent a testing of the validity of patents in the courts'.
> >
> > * * * *

(*footnote continues*)

The Court of Appeals, faced with a record indicating that the District Court had erred not only on the patent issue but also on all other liability issues, affirmed the District Court on the limited issue of "fact of damage." In a concurring opinion, Judge Sloviter pointed out that Van Dyk's evidence on the "fact of damage" issue was sufficient to support a verdict assuming a Section 2 violation and adequate proof of the amount of damages. (App. A, p. 13a). The majority did not disagree.

Van Dyk thereupon filed a Motion for Rehearing and Rehearing *En Banc,* arguing essentially that the District Court's erroneous findings in favor of Xerox on the central patent issue, where the Court had been clearly misled, undoubtedly influenced its view of all other issues. Van Dyk maintained that the case should be remanded to the District Court for consideration of the decisions of the United States Patent Office followed by reconsideration of all other issues.[13] Van Dyk's Motion for Rehearing was denied on October 30, 1980.

The Court of Appeals, by deciding this case solely on the "fact of damage" issue, also avoided affirming the District Court's erroneous acceptance of Xerox' other claims. One such claim was that Xerox never sought to discourage the purchase of Xerox plain paper copiers by setting exorbitant sale prices. The District Court had accepted all of Xerox' contentions on

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(*footnote continued*)

> We are satisfied that the group's [Rank Xerox and Xerox] patent portfolio has impeded and delayed the emergence and establishment of competing suppliers of plain paper copiers in this country. Competitors or potential competitors have been faced with a very substantial patent barrier. In this context the reluctance of Rank Xerox to ascertain even the number of the group's patents relating to the indirect system (see paragraph 133) and its inability readily to identify which patents were used in particular machines (see paragraph 136) are, in our view, indications of the difficulties faced by competitors. (Report at pp. 93-94)

[13] Van Dyk pointed out that the trial judge had advocated the submission of patents to the Patent Office for determinations of validity and had maintained that the federal court should give "significant" weight to decisions of the Patent Office. Lacey, "A Federal District Judge's Views on Patent Reissue, Protest and Duty of Disclosure," 60 J. Pat. Off. Soc'y. 529, 534 (1978).

this important issue despite the fact that Xerox' admissions reflected a rental-only policy which was designed both to prevent re-leasing and resale competition in Xerox equipment and to deprive Xerox customers of the "benefits associated" with "outright sale," in order to protect against what Xerox admitted was the "biggest, single, future threat to Xerox' revenue and profit levels" (PX 450).

Thus, while Xerox' patent acquisitions were designed to discourage the development of competitive plain paper copiers, Xerox' refusal to sell plain paper copiers was designed to prevent the only other form of plain paper copier competition possible—that in Xerox equipment which had been acquired by purchase.

The trial record demonstrates that Xerox decided not to sell its equipment even before the first plain paper copier was manufactured. As one Xerox executive admitted:

> It was not until two major business decisions were made that they really started the program. One was that we would go ahead with the copier [914] based upon the fact that some market was evident from *copiers of a different sort that were being developed and sold successfully; and secondly that instead of selling the machine we would lease it.* (A. 1899) (emphasis added).

After Xerox management was warned by counsel that it had to place a purchase price on its equipment (PX 435), apparently in order to comply with the requirements of the Sherman Act, the purchase price which Xerox assigned was described by Sol Linowitz as follows:

> . . . .I do recall hearing that the *sales price as established should not encourage a lot of customers to buy rather than rent***** I am trying to be very careful in my response to reflect as accurately as I can from what I remember from discussions**** Wilson, McClough, Rutledge in one form or another expressed somewhat the same kind of sentiment (PX 472 at 1681-82; emphasis added; see also PX 1142).

The cost of manufacturing the Xerox 914 was $2,182; the sales price affixed was $29,500 (PX 1139; "Xerox Confidential"). The Arthur D. Little Company had projected as reasonable a sales price of between $4,000 and $5,000 for the Xerox 914. (DX 30 at 11914).

The sales prices that were subsequently assigned by Xerox to its copiers were simply attempts at colorable compliance with the Sherman Act, and such prices were established only in the United States where, as Xerox' Chief Executive Officer testified, "it was required" (A. 969). Where there were no antitrust considerations, such as in Rank Xerox' and Fuji Xerox' (foreign) territories, sales prices were never established (A. 969; PX 441; PX 1249-C, May 18, at 65-67).

A comparison of manufacturing costs of the Xerox "heartland" high-speed plain paper copiers, the 2400, 3600 and 7000 (which accounted for the overwhelming majority of Xerox' profits), with the sales prices eventually assigned, reflects Xerox' desire to prevent the acquisition of the plain paper copiers by purchase:

Model	Sales Price at Date Sales Price was Placed on Model	Assigned Cost of Mfg. as of Year Sales Price Was Placed on Model
Xerox 2400	$27,900	$3,723
Xerox 3600-III	$33,900	$5,606
Xerox 3600-I	$33,000	$4,771
Xerox 7000	$37,000	$6,059

(PX 1139; "Xerox Confidential").

After Xerox had placed a $14,000 purchase price on the 2400 to the General Services Administration (the assigned cost of manufacturing of the 2400 was $3,723, *supra)* Xerox learned that the Savin Corporation was planning to purchase Xerox 2400s for "re-leasing" purposes. Xerox' Vice-President of Marketing Souders reported:

> . . .The prospect of viewing our own machines in the marketplace as competition leaves me very cold. . . . As a

> further note, Savin Business Machines, at their request, is coming in next week to discuss purchase [of] equipment for re-leasing (PX 435).

The purchase price was thereupon doubled. Souders restated his concern that "we cannot have a $14,000 sales price for the 2400 with all that implies; not just for the 2400, but for all future products." (PX 440).

Even as late as 1974, after the FTC had charged Xerox with illegally maintaining monopoly power by pursuing a "lease-only" policy, an official in Xerox' Corporate Planning Department observed that Souders' newest outright sales plans were "about what I would expect from an organization that doesn't really want to sell anything, but feels pressured to sell a little and wants to build a case for demonstrating that the market, in fact, will not buy" (PX 437 at 0111302). Despite these admissions, the District Court accepted Xerox' claim that the market would not buy.[14]

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[14] The Vice-President of Dataquest, Inc., the principal independent industry market research firm, of which Xerox was the leading member (App. B, p. 107a; A. 1941, 1943-47, 1950-52), testified at trial that it was obvious that Xerox "didn't try to sell machines at all in the 1960's and early 1970's (A. 2007). Moreover, customers had no difficulty in discerning Xerox' rental-only policy. In February, 1976, when the police department of Hayward, California notified Xerox of its intent to replace its equipment with Van Dyk equipment (PX 476 at 3), Xerox for the first time offered a sales option. The City's Deputy Director of Finance noted that Xerox had been renting "to us for years;" that "I wasn't aware of any sales by Xerox of machines," and that Xerox' salesman told him that it was "an option. . .not available to them in the past." (PX 477 at 9). The Deputy Director testified: "[s]o everyone said, Aha, Xerox is pulling something fishy here." *Ibid.*

Xerox' sales revenues as a percentage of total copier revenues by machine model from 1962 until 1972, the date upon which Van Dyk prepared to enter the market, were as follows:

(*footnote continues*)

The Court of Appeals also avoided affirming the District Court's erroneous definition of a relevant market, which included not only plain paper copiers but coated paper copiers and offset presses as well. The trial record simply did not support the District Court's finding on relevant market (App. B, p. 72a). For example, in the period 1972-1973 (the important period for the District Court), Xerox statistics demonstrated that only 3.5%-4.1% of the hundreds of thousands of Xerox plain paper copiers in the field were replaced by coated paper copiers. (PX 1055 at SR 090036-40). In the following year, 1974, Xerox admitted that it "currently addresses only a small portion of the coated paper environment" (PX 1055 at SR 090042). It recognized that the 1,000-3,000 copies per month (CPM) volume band was the "coated media heartland through 1975" (PX 1055 at SR 090039), whereas Xerox' heartland was the high-volume 3600 family making tens of thousands of copies per month. (PX 453 at SR 051209; A.492). In 1973, the year of the District Court's market finding (App. B, p. 72a), 93% of Xerox' copies and 95% of its profits were derived from machines making copies in volumes above the coated paper "heartland". (PX 1037 at SR 096735). In 1974, Xerox admitted that "PPC's present the main competitive threat in the relatively near future". (PX 1058 at PS 304454).

(footnote continued)

XEROX SALES REVENUES AS A PERCENTAGE OF TOTAL COPIER REVENUES BY MACHINE MODEL (PX 1142)

Year	914	813	2400	3600-I	3600-III	7000	4000 [Xerox]
1962	0.0%	—	—	—	—	—	—
1963	.3	0.0%	—	—	—	—	—
1964	2.4	0.0	—	—	—	—	—
1965	2.9	1.5	0.0%	—	—	—	—
1966	1.5	1.2	0.0	—	—	—	—
1967	.4	.7	0.0	—	—	—	—
1968	.4	.3	0.03	—	0.0%	—	—
1969	.1	.3	.9	0.0%	0.0	0.0%	—
1970	.1	.3	.2	0.0	0.0	0.0	—
1971	.3	.2	.4	.5	.3	.1	0.0%
1972	.6	.3	1.4	1.0	.4	1.0	0.0

In 1973 over 90% of coated paper copier users were very small businesses and over 90% had only one copier, almost always purchased (PX 555 at 24367). A 1973 Xerox study described the characteristics of the coated paper copier "market segment" (0-3000 CPM) practically in the words of *Brown Shoe Company* v. *United States*, 370 U.S. 294 (1962), noting its "significant differences" from the plain paper segment in "manufacturing sources, marketing approaches, service, and supplies costs"; coated paper copier customers who were "extremely sensitive to cost"; the "low revenue per unit" which required "minimal" sales experience, service costs and investment to keep coated paper copier prices low; and the fact that a high percentage of such units were purchased outright for $200-$1200 per unit (PX 526 at 24446).

As indicated, *supra*, in 1972 only 4.1% of Xerox' machine population was cancelled by *all* coated paper copier competition. In 1973 there were 389,000 plain paper copiers in place; only 13,464 or 3.5% were cancelled by coated paper copiers (PX 1055 at SR 090036-40).[15] These small percentages of machine cancellations were even less significant when viewed in terms of the revenue losses which they represented to Xerox. Xerox admitted that "competition should be looked at in terms of revenue loss instead of the units lost. This is a more realistic indicator of competitive impact." (PX 1034 at SJ018216). Xerox reported with regard to cancellations of plain paper copiers by coated paper copiers during 1973: "64% of all coated paper activity (cancellations) occurs between 0 and 3,000 CPM." (PX 1055 at SR090037). Xerox admitted that 88% of its revenues, 93% of its copies, and 95% of its estimated profits during 1973 were derived from plain paper copiers operating in volume bands above the 0-3,000 CPM band. (PX 1037 at SR096735). In sum, the percentage of Xerox copiers cancelled by coated paper copiers was small, 3.5%. This becomes even

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[15] In the 1960's Xerox reported cancellations by coated paper machines as "almost negligible" (PX 1031 at 3) and "relatively insignificant" (PX 1032 at 7). Xerox viewed coated paper copiers as "dead-end technology" (PX 519 at 37; *id.* at 18), and also projected that "during the period 1974-1976 cancellations [of Xerox plain paper copiers by coated paper copiers] will decrease 40% compared to 1973 activity" (PX 1055 at SR090036-37).

less significant when 64% of such cancellations occurred in the volume band which generated only 7% of Xerox' copies, and 5% of its estimated profits. Thus, the 3.5% of Xerox' machine population cancelled by coated paper copiers has practically no significance when measured in terms of revenue, which Xerox admitted was the "more realistic indicator of competitive impact". (PX 1034 at SJ018216). Yet the District Court found that in 1973, coated paper copiers were a part of the only "relevant market". (App. B, p. 72a). *Compare U.S.* v. *Aluminum Co. of America,* 377 U.S. 271 (1964) (22.8% competitive overlap did not prevent separate relevant market).

With respect to offset presses which the District Court included in the relevant market, the Court found that such machines offered competition to a "much lesser degree" than even coated paper copiers (App. B, p. 45a). Even Xerox conceded that it did not compete significantly with offset presses, which required specialized operators, the setting up of "masters" or stencils, were messy and noisy, and were used for very long run lengths. Even as late as 1975, Xerox admitted it was a "relatively small factor of the duplicating market". (PX 581 at SC19386-87). In the same year, Xerox recognized that copying and duplicating were still "polarized" (PX 1037 at SR096726).

In *U.S.* v. *Grinnell Corp.,* 384 U.S. 563, 570-71 (1966) this Court held that "the existence of [monopoly] power may be inferred from the predominant share of the market." Xerox has admitted that its shares of the revenues generated in the plain paper copier market in the United States were as follows: 1960-69—*100%*; 1970—*99.9%*; 1971—*98.2%*; 1972—*96.8%*; and 1973 (the year of the Court's relevant market finding)—*92.5%* (PX 607, 1150). There is no question that such market shares establish "monopoly power." In view of this record, it is little wonder that the Court of Appeals again avoided sustaining the District Court's decision on the issue of relevant market or lack of monopoly power, but instead rested its affirmance solely on the "fact of damage."

REASONS FOR GRANTING THE WRIT

The Court of Appeals' decision effectively nullifies the fact of damage standard enunciated by this Court in *Zenith Radio Corp.* v. *Hazeltine Research, Inc.*, 395 U.S. 100 (1969), since once Van Dyk established the illegality of Xerox' actions, its burden was only to demonstrate that "some" damage flowed from the illegality. "Inquiry beyond this minimum point goes only to the amount and not the fact of damage .... [*i*]*t is enough that the illegality is shown to be a material cause of the injury;* a plaintiff need not exhaust all possible alternative sources of injury in fulfilling its burden under § 4." *Zenith, supra* at 114 n.9 (emphasis added). If defendant's acts "materially contributed" to the loss (notwithstanding that other factors may also have contributed), that is sufficient. *Continental Ore Co.* v. *Union Carbide and Carbon Corp.*, 370 U.S. 690, 702 (1962).

If this Court were to assume, as did the Court of Appeals, that Xerox' patent acquisitions were unlawful and that Xerox made these acquisitions in order to deter competitive entry into the plain paper copier market, it would be difficult to conclude that Van Dyk was not injured in its effort to secure capital by the threat posed by these Xerox patents. Certainly the British Monopolies Commission recognized the threat that Xerox' patents posed to new entrants. (See *supra*). As Areeda and Turner have observed with respect to the monopolist who seeks to extend control beyond the expiration date of important patents by accumulating insignificant patents:

> ... even if all the patents are "relatively weak", their sheer number threatens that one might be held valid and infringed. The potential newcomer may therefore feel compelled to make his peace with the monopolist before committing substantial investments to the field, or he may not enter at all. III Areeda and Turner *Antitrust Law* (1978), Section 704(b) at pp. 115-16.

Van Dyk respectfully submits that, assuming that Xerox violated Sherman Act §2, and specifically assuming that Xerox' patent acquisitions were illegal, it is impossible to conclude, as

did the Court of Appeals, that Van Dyk did not sustain "some" cognizable injury under the standard enunciated by this Court, where the trial record contains the following uncontradicted evidence:

While Van Dyk was able to develop an early prototype of the Van Dyk 4000 with its own funds, substantial outside investment was required to complete the development of the copier and to prepare for manufacturing and marketing. As the Court of Appeals' opinion indicates (App. A, p. 5a), Van Dyk's first public offering was made through Mayflower Securities, Inc. ("Mayflower"), a very small local over-the-counter underwriter. Despite prior efforts by Dr. Pollack to raise capital, not one major firm could be interested in financing Van Dyk.[16] Because of Mayflower's small size, the underwriting was limited to $2.1 million and was over-subscribed by 10% by its small clients (A. 581-82).

Mayflower also recognized that if Van Dyk were to manufacture and market its plain paper copier it would require much more capital than could be raised through any offering of Mayflower. Therefore, in 1970 and 1971, Mayflower also attempted to interest large investment firms in Van Dyk. The prototype of the Van Dyk 4000 was demonstrated to 50 to 60

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[16] In view of the warning which Van Dyk was required to place in its prospectus, it is not surprising that not one of the major investment firms would agree to assist Van Dyk in securing capital:

> In addition, the investor should understand that Xerox has over 1000 patents on the xerographic process and devices employing that process.**** In view of the number of Xerox patents, the Underwriter has conducted no independent investigation into the patentability of the Company's proposed copier or into the question of whether it infringes upon any of the Xerox patents. In the event that Xerox should institute a successful patent infringement action against the Company, the Company may be precluded from manufacturing its copier. In any event, the diversion of funds to defend against a suit for patent infringement could impair the Company's ability to finance the development, manufacture, and sale of its copier and the initiation of such a lawsuit could substantially impede the marketability of its copier because of doubt on the part of dealers and customers that the Company would prevail in the lawsuit, or because of reluctance to risk possible involvement in such patent infringement suit. (PX 8 at 3-4; See also PX 8 at 8).

representatives of large investment firms and financial institutions (A. 585) in an unsuccessful effort to secure their assistance. (A. 593).

In 1972 another small offering was made by Mayflower. Again, Van Dyk was required to disclose in its prospectus the threat posed by Xerox' patent portfolio and the probability of patent infringement litigation by Xerox (PX 15 at 3, 9-10, 13). The Securities and Exchange Commission ("SEC"), however, now insisted, as a condition of registration, that Van Dyk provide an independent outside opinion of patent counsel concerning Xerox' patent portfolio. The SEC was as concerned as were the large investment firms about Xerox' patent portfolio:

> Reference is made to our [the SEC's] request herein for an opinion of independent patent counsel concerning possible infringement of patents owned by the Xerox Corporation. The staff does not intend to review an amendment responsive to these comments until such opinion has been filed as an exhibit to the registration statement (PX 10 at 1).

The law firm of Morgan, Finnegan, Durham and Pine, retained by Van Dyk, reported:

> The complexity and number of patents involved in the field of electrophotography or xerography and the current rate at which additional patents are issuing makes it practically impossible, at this time, to give an estimate with any degree of accuracy of the time and costs of an infringement study . . . . " (PX 12).

It is not surprising that Van Dyk had no success in securing sufficient capital to survive.[17]

Dr. Pollack's testimony concerning his discussions with firms such as Agfa-Gevaert N. V. ("Agfa") (PX 24; A. 1077), General Aniline and Film Corporation (A. 1061), Addressograph-Multigraph Corporation (Tr. 2041-42), Singer

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[17] Even though the Van Dyk 4000 was recognized by Xerox to be superior to Xerox equipment (see, e.g., PX 1235; PX 1749 at 1-2) and was considered to be a superior product by the investment community (PX 41, p. 5), concern over infringement of Xerox' patents [now held invalid by the Patent Office] and Xerox' proclivity for suing United States firms (A. 960-62; see also PX 34, 36, 104, 119, 121, 652 at 2, 912), prevented large capital investment in Van Dyk. Van Dyk's very survival depended upon adequate financing, as the District Court found (App. B, p. 104a).

Company (A. 1065), Litton Industries (A. 1068-69), Minnesota Mining and Manufacturing Corporation ("3M") (A. 1071-72), International Telephone and Telegraph Corporation (A. 1081-82), A. B. Dick Company (Tr. 2076) and many others was not subject to contradiction. These firms, potential sources of financing for Van Dyk, were vitally concerned about the threat posed by Xerox' patent portfolio.

Dr. Pollack's testimony about the grave concern expressed by potential investors in Van Dyk was fully corroborated. For example, Leroy F. Bazany, Vice-President of Finance for Apeco Corporation, testified in response to Xerox' inquiry concerning Apeco's efforts to secure financing to support the Apeco-Van Dyk merger:

> The negotiations with various financing sources did have some rough sledding because of *specifically* the patent questions because it was not absolute as to what the patent position was. It was a risk in the transactions from start to finish. It was a question mark. (A. 4727, emphasis added).**** We had a number of financing banks who were providing loans to us and they had some *very grave reservations about the patent situation* and the exposure of Apeco Corporation because of them, and my opinion is—and it is an opinion, which you should confirm with the banks directly—that was part of the reason why Harris Bank eventually backed out of the financing consortium that was servicing Apeco. (A. 4729; emphasis added).[18]

As the documents subpoenaed by Van Dyk from the Harris Trust and Savings Bank confirm (*supra*), that bank was greatly concerned about Xerox' patent portfolio; and as Bazany testified, not only were the banks concerned about the huge costs of

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[18] The Harris Bank reported internally:

*The initiation of a patent infringement suit by Xerox may seriously impair APECO's ability to market the Van Dyk machine and obtain further financing***** The foregoing [along with other considerations] should be considered in the renewal. . .of our $1,000,000 unsecured line of credit and the continuation of our $2,500,000 participation in a $15,000,000 unsecured revolving and term credit. (PX 40 at 12; emphasis added).

infringement litigation by Xerox, they were also concerned that the marketing of the Van Dyk 4000 would be enjoined (PX 1262 at 147-48).

With Apeco's failure to secure financing and the consequent failure of the Van Dyk-Apeco merger, Van Dyk, after commencing to sell its plain paper copiers to SCM, continued to seek capital in the investment community. Merrill Lynch at first believed that it could successfully raise $10 million for Van Dyk in view of the profits to be realized from sales to SCM. Peter Bennett, a Merrill Lynch specialist in private placement, testified, however, that Merrill Lynch was unsuccessful in its efforts in behalf of Van Dyk and that the threat of patent infringement litigation by Xerox:

> . . . came up with virtually everyone who looked at it. Whether I brought it up or whether they asked me what they thought my opinion was I can't remember but *certainly it was a very, very big question in most investors'—potential investors' mind[s] who were half way serious about pursuing it.* (A. 512) (emphasis added)

Thus, all of the testimony from disinterested witnesses such as Bennett, and from witnesses hostile to Van Dyk such as Bazany, reflected the concerns within the investment community about providing capital to Van Dyk. The internal documents from the banks, moreover, confirm the concern that "the initiation of a patent infringement suit by Xerox may seriously impair Apeco's ability to market the Van Dyk machine and obtain further financing. . . ." (PX 40 at 12)

Long before there had been any decline in the money markets, major firms which were seriously interested in investing in or trading with Van Dyk refused to do so because of concern about Xerox' patents. (A. 1077, 1273). The Director of Agfa, a major European industrial firm, wrote to Dr. Pollack in 1973:

> I would like to confirm that we are very much interested in a long term cooperation with you and are, in principle, prepared to invest the necessary means which such a cooperation would imply.

> *You will appreciate, however, that prior to such an investment decision we need additional information regarding the patent situation, especially in the U.S. and in Europe,* your existing plans in other above-mentioned fields, etc. . . .
>
> Confining ourselves for the time being to your present high-speed copier, I would like to emphasize again the existence of an Agfa-Gevaert distribution and service network covering the whole of Europe.
>
> It is also our interest to manufacture or at least assemble your machine for the European market (PX 24; emphasis added).[19]

Dr. Pollack could not assure Agfa that Xerox would not institute patent litigation to enjoin the manufacture and marketing of the Van Dyk 4000 (A. 1077), and Van Dyk had no further communication with Agfa after the Agfa letter inquiring about the "patent situation" was received (A. 1273).

In early 1973 Konishiroku, a large Japanese industrial firm which was vitally interested in marketing the Van Dyk 4000, confirmed its interest in the Van Dyk 4000, provided that patent clearance could be given:

> 5 MILLION DOLS WILL BE GUARANTEED WHEN MARKETING PLAN IS FINALIZED *AND PATENT IS CLEARED.* TO FINALIZE THOSE WE WILL SEND A DELEGATE VERY EARLY NEXT WEEK. CONTRACT WILL BE MADE THEN. BEST REGARDS. YONEYAMA KONISHIROKU (PX 22; emphasis added).

As indicated in the Morgan, Finnegan letter (*supra*), Van Dyk could not provide the required patent clearance.

In 1973, after the Apeco merger collapsed, Van Dyk conducted discussions with 3M, which had expressed substantial interest in the Van Dyk 4000, but which also expressed

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[19] In the mid 1950's Xerox considered Agfa as a likely joint venture partner in Europe (in place of Rank Organisation, Ltd.) and met with Agfa representatives to explore that possibility (A. 1348).

significant concern about Xerox' patents in late 1973, when Van Dyk unsuccessfully sought a marketing arrangement for its copier. (A. 1071-73). Later, when it was protected against Xerox' patents by the 1975 FTC Consent Decree, 3M purchased hundreds of used Van Dyk 4000 copiers from SCM in early 1979, after Van Dyk had filed under Chapter XI and had been forced to cease manufacturing. (The Wall Street Journal, January 5, 1979.) The fact that 3M was willing to purchase and market *used* Van Dyk 4000 copiers *six years after the first commercial production of the Van Dyk plain paper copier* is indicative of the opportunities that would have been available to Van Dyk in the absence of a Xerox patent threat based upon unlawfully acquired patents.

With respect to the District Court's findings that Van Dyk's inability to secure adequate capital was attributable to causes other than Xerox' patents (e.g., App. B, p. 102a), and particularly to: (1) Van Dyk's dealing with a small investment firm, Mayflower Securities (App. B, pp. 35a-37a); (2) Van Dyk's abortive merger with the financially distressed Apeco (App. B, pp. 39a-41a); (3) Van Dyk's sale of equipment to SCM (App. B, pp. 41a-43a); and (4) the state of the financial and securities markets in 1974 and 1975 (App. B, pp. 43a-44a), the following points, discussed in this petition, are significant:

1. Whatever the motivation of a few investors, it is undisputed that numerous large investment firms would not deal with Van Dyk in view of the threat of Xerox patent litigation.

2. It is also undisputed that, whatever the motivation of some industrial firms in failing to deal with Van Dyk, large industrial firms including 3M, Agfa, and Konishiroku were discouraged from dealing with Van Dyk by the threat of Xerox patent litigation. Only a financially distressed Apeco, a pioneer in the manufacture of coated paper copiers, was willing to chance Xerox patent litigation in an effort to survive in a marketplace in which its coated paper copiers could not compete effectively against Xerox' equipment. It is uncontradicted that Apeco's own efforts to

secure the necessary funds to support the manufacture and marketing of the Van Dyk 4000 were frustrated by the threat of Xerox patent litigation.

3. Van Dyk recognized that the SCM purchase arrangement was temporary and continued actively to seek financing while the SCM contract was in place. As Peter Bennett of Merrill Lynch, a disinterested witness, testified (*supra*), patent litigation by Xerox "was a very, very big question in most . . . potential investors' minds." (A. 512).

Finally, Van Dyk's expert in foreign and domestic investment and risk markets, by considering the financing actually made available to other young, high-technology companies during the relevant period, determined that Van Dyk would have been able to secure adequate capital to survive in the marketplace in the absence of Xerox' unlawful practices (PX 803).

The District Court's decision in this case is permeated with error in the determination of fact and the application of the decisions of this Court. The Court of Appeals, rather than addressing these critical issues, sustained the District Court on the narrow issue of "fact of damage".[20]

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[20] A leading investment research firm, Bear Stearns & Co. in its "Litigation Review, Vol. I, No. 9, October 16, 1980, made the following observation concerning the Court of Appeals' decision:

> Rather than seeking to defend the entire decision, the Court of Appeals opted to affirm the decision on the limited ground that Van Dyk could not have been injured. However, instead of demonstrating how none of the challenged conduct. . .could possibly have injured Van Dyk, the Court launched into an extensive discussion of the other problems which Van Dyk faced as a developing company in the business, concluding that it was those problems, not Xerox, that caused Van Dyk's downfall.**** In our thinking, the decision is on somewhat questionable ground in holding that since these factors were operating against Van Dyk, no violation by Xerox could have caused it any injury. In disposing of a case on a single element of the offense, it must be assumed that the other elements of the offense were resolved in Van Dyk's favor and in this case, if one assumes that Xerox had a monopoly and that its practices were improper, it is somewhat difficult to believe that those practices had no effect on Van Dyk (at p. 12).

Van Dyk respectfully submits that the Court of Appeals committed error in refusing to remand this case to the District Court with appropriate instructions concerning the dispositive issues in this case, including the "fact of damage", and for consideration of the decisions of the United States Patent Office which contradict the District Court's findings on the critical patent issue. Presented with evidentiary facts which are uncontradicted, the District Court could not reasonably have found that Xerox' patent practices were not at least "a material cause" of injury to Van Dyk. It was, therefore, incumbent upon the Court of Appeals to remand.

For the foregoing reasons, the Petition for a Writ of Certiorari should be granted.

Dated: February 11, 1981

Respectfully submitted,

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APPENDIX A

UNITED STATES COURT OF APPEALS
FOR THE THIRD CIRCUIT

No. 79-2422

VAN DYK RESEARCH CORPORATION,
a body corporate of the State of New Jersey,
Appellant

v.

XEROX CORPORATION,
a body corporate of the State of New Jersey

APPEAL FROM THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF NEW JERSEY

(D.C. Civil No. 75-0419)

Argued June 11, 1980

Before: HUNTER, WEIS, and SLOVITER, *Circuit Judges*

(Filed September 30, 1980)

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OPINION OF THE COURT

WEIS, *Circuit Judge.*

The plaintiff claims damages from the defendant Xerox Corporation, asserting that it violated the antitrust laws in the development and marketing of plain paper copiers. The district court found that the plaintiff failed to establish liability. We review only the finding that the plaintiff did not prove the fact of injury and, concluding that the district court's determination is supported by the record, affirm.

Van Dyk filed a complaint against Xerox in the United States District Court for the District of New Jersey, alleging violations of §§1 and 2 of the Sherman Act, 15 U.S.C. §§1, 2 (1976), and §3 of the Clayton Act, *id.*

§14. The latter claim was abandoned before trial. After a bench trial, the district court found no transgression of the antitrust laws and further, even assuming violations, no adequate proof of injury or damages. Accordingly, judgment was entered for the defendant.

I

The district court's findings of fact establish the pertinent background.[1] In 1947 Xerox (then the Haloid Co.) received a license from the Battelle Memorial Institute to make, use, lease, or sell products comprising the inventions in electrophotography patented by Chester F. Carlson in the early 1940's and licensed by him to Battelle. Between 1949 and 1962, Xerox and Battelle worked closely on research and development of the new process in close cooperation with Carlson. Additional patents were secured during this period.

In 1956 and 1959, Battelle assigned all of its xerographic patents to Xerox in exchange for stock. Also in 1956, Xerox and Rank of England concluded an agreement on the formation of a joint venture, Rank Xerox, which was given an exclusive license to manufacture and sell xerographic equipment outside the United States and Canada. Rank Xerox granted licenses to Fugi Xerox in 1960 to sell and manufacture such equipment in Japan and other far eastern countries.

Xerox developed prototypes of the Model 914 and the Model 813 in 1958. These were revolutionary, compact office copiers utilizing plain paper rather than the specially prepared "coated" paper then generally used in machines manufactured by other companies. After IBM rejected an offer to manufacture and market the 914 and 813, Xerox decided to proceed on its own. Since the di-

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1. The trial required 24 days and the testimony of 39 witnesses. The trial judge's opinion included 391 findings of fact and applicable legal discussion. It is reported at Van Dyk Research Corp. v. Xerox Corp., 478 F.Supp. 1268 (D.N.J. 1979).

rect production cost of the 914, apart from research and development, was in excess of $2,000 per unit, Xerox decided to lease the machines. The leases were terminable on 15 days' notice and provided for a monthly minimum rent as well as a charge for each copy.

The 914 competed against a number of models that used a variety of processes to copy material on coated paper, including machines manufactured by Kodak and Minnesota Mining and Manufacturing. The 914, however, was so successful that by 1965 Xerox had captured 80% of the United States market in plain and coated paper copiers.

In 1965 and 1969, Xerox introduced the 2400 and the 3600, respectively, models that produced copies at a rate much faster than previous units. The Model 7000, which was able to reduce a copy in size, was introduced in September 1969.

IBM entered the plain paper copier market in 1970 with its Copier I, and Xerox immediately began patent litigation. The Copier I was followed by a number of Japanese products, primarily low volume machines, and in the mid-1970's both IBM and Kodak were producing high-speed copier/duplicators. By 1974 there were 14 companies other than Xerox marketing plain paper copiers in the United States, and four years later Xerox faced competition from at least 38 plain paper models.

During this period, Xerox developed new units featuring duplexing (the ability to copy on both sides of a sheet of paper), automatic feeder systems, and other refinements. One machine was capable of making 120 copies per minute. Coated paper technology also was improving in the 1960's and 1970's, and offset duplicators began to appear in compact, automatic form suitable for general office use.

In 1968, the Van Dyk Company, which had been organized for about 4 years, acquired a small facility in Hackettstown, New Jersey to develop a prototype plain

paper copier that would compete with Xerox. The following year, Van Dyk went public with a stock offering underwritten by Mayflower Securities, Inc., a small investment banking firm. The offering was oversubscribed and yielded over 2.1 million dollars despite a warning in the prospectus that Xerox had over 1,000 patents on the xerographic process and patent litigation might preclude Van Dyk from manufacturing its proposed copier.

The proceeds of the offering were used to develop the Van Dyk Model 4000, which was exhibited in 1971. In the next year, Mayflower arranged a second stock issue that yielded an additional 3.6 million dollars. This offering also was oversubscribed, although Van Dyk did encounter some difficulty in negotiating loans from several large financial institutions because of concern about Xerox's strong position in the field.

Van Dyk acquired a facility in Parsippany, New Jersey and began commercial production of the 4000 in 1973. This model was a somewhat faster, slightly improved version of the Xerox 3600, which by that time had been taken out of production. Although the 4000 did possess some technological innovations, it did not have an automatic feed system, copy size reduction, or duplexing capability. The Van Dyk model was designed, marketed, and priced to compete at the higher volume end of the copier/duplicator market in competition with offset duplicators as well as coated and plain paper machines.

Van Dyk pursued several alternatives in its marketing efforts. Rather than emphasize outright sales, it planned a rental program and for this purpose arranged a 3 million dollar line of credit with a bank. That line of credit, however, was never utilized. During 1971 and 1972, the company had discussions with various foreign and domestic firms interested in marketing the 4000. In 1973 the Apeco Co., which sold coated paper copiers, approached Van Dyk to explore the possibilities of a joint venture.

What began as a marketing proposal culminated in a merger agreement. On May 10, 1973 a formal agreement was executed providing for an exchange of stock, Apeco to be the surviving corporation responsibile for obtaining financing to develop and market the 4000, mainly by lease. As an additional part of the agreement, Apeco loaned Van Dyk 5 million dollars to complete the facility at Parsippany, New Jersey. In September 1973, after the stockholders of both companies had approved the merger, Van Dyk learned that Apeco's financial condition was precarious and withdrew. Van Dyk later sued for several million dollars, alleging that it had been induced by Apeco to make substantial commitments resulting in large damages.

Van Dyk then investigated the possibility of a third public offering through Mayflower. That underwriter, however, was unable to proceed because of a pending Securities and Exchange Commission investigation. In subsequent litigation, Van Dyk alleged that Mayflower's fraudulent concealment of the SEC proceedings caused a delay in obtaining operating capital, thereby damaging Van Dyk.

Van Dyk tried yet another tack. In December 1973 it agreed upon a marketing arrangement with the SCM Corporation providing for the sale of 2,200 Model 4000 copiers over a period of twenty-four months. The machines were to be marketed by SCM under its own trade mark, and it was understood that the two firms would be in competition. In order to meet its commitment to SCM, Van Dyk did not develop its own marketing organization as energetically as it otherwise would have.

SCM cancelled the contract in January of 1975, having purchased only 1,225 of the 2,200 units it had agreed to buy. Van Dyk's effort to raise more money during 1974 met with mixed results. It was able to secure a 2.5 million dollar line of credit from several banks, but a 10 million dollar convertible debenture offering foundered because of deteriorating money markets.

With the cancellation of the SCM contract, Van Dyk was faced with a large number of machines coming off the production line, only a small direct sales force, and a cash flow inadequate to pay parts suppliers. Another attempt at a public offering in mid-1975 was not successful, and, in October of that year, Van Dyk filed for an arrangment under Chapter XI of the Bankruptcy Act.

In the district court Van Dyk contended that Xerox monopolized the plain paper copier market or submarket by (i) abusing the United States patent system, (ii) creating a "rental only" market environment to frustrate competition, (iii) participating in an international cartel with Rank Xerox and Fuji Xerox to divide world markets and pool member patents illegally, and (iv) engaging in exclusionary marketing practices.

The district court defined the relevant market as a continuum including plain paper, coated paper, and offset technologies and found that Xerox's share of this market, 35%, would not support the inference that it possessed monopoly power. Furthermore, Xerox had not achieved or maintained its position in the market by unlawful, exclusionary conduct. The court stated that the plaintiff failed to establish that Xerox abused the patent system, created or maintained a rental only market to frustrate competition, entered into an illegal cartel, or engaged in exclusionary marketing practices.

In addition, the court held that even if antitrust violations had been shown, the plaintiff was not entitled to recover because it did not establish that it was injured by any of the defendant's allegedly unlawful conduct, did not sustain its burden of proving that the damages it claimed to have suffered were causally related to such conduct, and did not provide the court with a reasonable estimate of its damages.

Specifically, the court found that Xerox had nothing to do with the Mayflower, Apeco, or SCM events, nor did the defendant by any unlawful conduct prevent Van Dyk from securing adequate financing.

II

We have abbreviated substantially the facts and procedural history of the case because we choose to rest our affirmance on the plaintiff's failure to show a causal relationship between its injury and the alleged antitrust violations. Because this is dispositive of the appeal, we do not discuss Van Dyk's other contentions.

Section 4 of the Clayton Act, 15 U.S.C. §15 (1976), allows recovery only to a plaintiff who is injured "by reason of" a violation of the antitrust laws. The plaintiff has the burden of proving that the established illegality was a material cause of the injury. *Zenith Radio Corp. v. Hazeltine Research, Inc.*, 395 U.S. 100, 114 n.9 (1969). As we said in *Sound Ship Building Corp. v. Bethlehem Steel Co.*, 533 F.2d 96 (3d Cir.), *cert. denied*, 429 U.S. 860 (1976), "[e]ven if a defendant's acts are shown to be violative of the statute, . . . a plaintiff may not recover unless a nexus to its own injury is also demonstrated." *Id.* at 98. Similarly, in *Deaktor v. Fox Grocery Co.*, 475 F.2d 1112 (3d Cir.), *cert. denied*, 414 U.S. 867 (1973), the district court directed a verdict for the defendant at the conclusion of the plaintiff's case because the evidence demonstrating the connection between the alleged antitrust violations and the damages was too speculative to submit to the jury. *Id.* at 1114. We affirmed, agreeing that although there was testimony about various reasons that might have caused the plaintiff's losses, no specific cause was assigned by the plaintiff's expert. *Id.* at 1117.

The requirement that a plaintiff be injured in fact is closely associated with standing to bring an antitrust suit. II P. AREEDA & D. TURNER, ANTITRUST LAW ¶¶334a, 335a, 335b, 335c, 343 (1978). But in this case the concept plays another role. It is not enough that the public has been harmed by a violation of the antitrust laws. The plaintiff seeking to recover treble damages must further establish as a matter of proof that the illegal

conduct was a material cause of its injury. *Rea v. Ford Motor Co.*, 497 F.2d 577, 589-90 (3d Cir.), *cert. denied*, 419 U.S. 868 (1974); L. SULLIVAN, HANDBOOK OF THE LAW OF ANTITRUST §251 (1978). In this case, then, Van Dyk had to prove that Xerox was a material cause of its financial difficulties, assuming *arguendo* that Xerox's activities violated the antitrust laws.

It also is necessary to bear in mind that the evidence linking illegality and injury must be more precise than that needed to establish the amount of damages. *Rea v. Ford Motor Co., supra*. In the latter context, the Supreme Court has held that the fact finder is allowed to act upon probable and inferential, as well as direct and positive proof. *Story Parchment Co. v. Paterson Parchment Paper Co.*, 282 U.S. 555, 562-66 (1931); *Bigelow v. RKO Radio Pictures, Inc.*, 327 U. S. 251, 263-65 (1946); *see Zenith Radio Corp. v. Hazeltine Research, Inc., supra* at 123-25. Although the district court also found that the plaintiff failed to meet the more lenient test in proving the amount of damages, we confine our review to the issue of fact of injury.[2]

The plaintiff seeks to recover the profits it estimates would have been earned had the defendant's allegedly illegal conduct not occurred. One of the plaintiff's expert witnesses testified as to this amount. To support the expert's damage projection Van Dyk would have needed to attract 37 to 40 million dollars over a four year period. Appellant's Brief at 54 n.68. Another witness, an expert

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2. Although the plaintiff also asked for injunctive relief in its complaint, the district court did not discuss that aspect of the case in its findings and opinion. On appeal, the plaintiff has not raised the issue, and we therefore assume that it is no longer in the case. In any event, although injunctive relief may be appropriate where damages are not, in the circumstances present here, the failure to prove the fact of injury is conclusive as to both forms of relief. *See* Merits Motors, Inc. v. Chrysler Corp., 569 F.2d 666, 668 n.2, 670 n.14 (D.C. Cir. 1977).

in the field of foreign and domestic investment and risk markets, testified that Van Dyk would have been able to raise that amount in the absence of Xerox's allegedly unlawful action. As recited in plaintiff's brief, the offending conduct was the establishment of a rental only market and Xerox's use of its patent portfolio to discourage investment in fledgling enterprises, particularly small ones like Van Dyk.

The plaintiff argues that the effect of the rental only policy was to make large capital investment necessary and preclude sales revenue needed for adequate cash flow. To establish a more direct injury, however, Van Dyk focuses on Xerox's alleged misuse of its patents by threatening infringement suits to discourage investment in rival firms.[3] Two additional experts testified that Van Dyk was unable to obtain the capital it needed because of the investor disinterest this practice generated.

This theory of causation was unequivocally rejected by the district court. It pointed out that in early efforts Van Dyk had been able to secure financing despite the formidable problems presented by Xerox's strong position in the market. The court specifically found that "Van Dyk failed to prove that it was prevented from securing adequate financing by any alleged unlawful conduct of Xerox, whether it be the so-called 'rental only' policy, Xerox' patent policy or Xerox' other alleged exclusionary activities." 478 F.Supp. at 1327.

According to Van Dyk's vice president, after termination of the Apeco merger agreement the company found itself in a situation of "urgent financial necessity."

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3. In 1975, pursuant to a consent agreement with the Federal Trade Commission, Xerox offered licenses to use certain of its inventions. *See* SCM Corp v. Xerox Corp., 463 F. Supp. 983, 994 (D. Conn. 1978), *remanded*, 599 F.2d 32 (2d Cir. 1979), *on remand*, 474 F. Supp. 589 (1979), *appeal docketed*, No. 79-7017 (2d Cir. June 4, 1979). However, patent litigation between the parties is presently pending in the District of New Jersey.

It had machines and production capacity but lacked the marketing and distribution facilities to bring in the necessary cash. At that point, the combination of Mayflower's inability to undertake further offerings and the unfavorable money market conditions were serious detriments to Van Dyk's cash-starved position.

The arrangement with SCM provided temporary relief, but at a cost. In order to meet its commitments to SCM, Van Dyk slowed its efforts to augment its own sales force. Consequently, when SCM cancelled the contract with almost a year remaining, Van Dyk was caught in a squeeze. It had to maintain substantial production, but although moderately successful in placing machines with customers, its distribution network simply was not enough to bring in the cash required to pay parts suppliers. Van Dyk was running out of money at a time when it was in exceptionally short supply.

These findings of fact cannot be characterized as clearly erroneous and adequately support the conclusion that Van Dyk's financial woes were not caused by any unlawful conduct of the defendant. It is true that competition from Xerox, IBM, Kodak, and other American companies, as well as a number of Japanese concerns, did not make life any easier for Van Dyk. But more than the existence of vigorous competition is required to establish the right to antitrust damages. Van Dyk was unable to meet its burden of establishing the requisite causal connection between injury and the alleged violations.

It is apparent that Van Dyk produced a machine that offered Xerox potential competition. But for the series of mishaps that befell it, Van Dyk might have captured a reasonable share of the market. But as we have noted, it cannot be said that the trial court clearly erred in finding that Xerox was not responsible for Van Dyk's financially emaciated condition. It is to be expected, even in the absence of antitrust violations, that every

fledgling enterprise will experience difficulties in entering a market against well established and knowledgeable competitors, and Van Dyk had more than its share. The disastrous failure of the Apeco merger, the SEC investigation that disabled Mayflower, and the cancellation of the SCM contract, all occurring during a period of tight money, were simply more than Van Dyk could endure. Just because this misfortune inured to Xerox's benefit, however, does not make that company liable for the damage caused.

We conclude that Van Dyk failed to establish a right to recovery, and, accordingly, the judgment of the district court will be affirmed.

SLOVITER, *Circuit Judge*, concurring.

I write separately to underscore the posture in which this case has reached this court, and thus the limited scope of our review. In support of its claim that "Van Dyk . . . failed because Xerox' twin exclusionary practices [the maintenance of a 'rental only' market and exclusionary patent practices] discouraged investment in a small firm [Van Dyk]", Van Dyk introduced evidence intended to prove that potential investors and lenders failed to invest in Van Dyk or to provide financing needed by Van Dyk because of the possibility of patent litigation by Xerox and because of the large capital requirements needed by Van Dyk to compete in the rental market created by Xerox' rental-only practices. Van Dyk's evidence consisted, inter alia, of testimony of persons specializing in private placement and investment banking and the testimony of one of plaintiff's principals that banks and investors had expressed that concern and reluctance. In addition, there was documentary evi-

dence from which one might infer the requisite causal nexus. Thus, for example, there was evidence that a major bank refused to participate in a loan because of the "indefinite" aspect of marketing leased equipment and the patent situation. This evidence was sufficient to permit the trier of fact to make the causal connection suggested by Van Dyk and would have supported a jury verdict for damages, assuming that Van Dyk surmounted the hurdles of proving liability and producing sufficient evidence from which a reasonable damage calculation could be made.

Thus, this case does not fall within the precedent of the cases cited by the majority in which plaintiffs failed to produce sufficient evidence of a nexus between the claimed violation and the claimed injury to warrant submission to a trier of fact. In *Sound Ship Building Corp. v. Bethlehem Steel Co.*, 533 F.2d 96 (3d Cir.), *cert. denied*, 429 U.S. 860 (1976), this court sustained summary judgment for a defendant because plaintiff failed to develop a theory or to set out any facts that would show a causal link between the defendant's acts and the plaintiff's losses. Similarly, in *Deaktor v. Fox Grocery Co.*, 475 F.2d 1112 (3d Cir.), *cert. denied*, 414 U.S. 867 (1973), we sustained the direction of a verdict for defendant because plaintiff had failed to produce evidence concerning a crucial element of its own causation theory. In this case, on the contrary, plaintiff's case was not deficient in the quantum of evidence needed to present the issue of fact to the jury.

Plaintiff, however, submitted the case to the court as a trier of fact instead of to a jury. After consideration of the evidence produced by both parties that factors other than those posited by plaintiff were responsible for plaintiff's financial difficulties, the court concluded that:

> "Van Dyk failed to demonstrate that Xerox' activities have had an adverse impact on Van Dyk's ability to market the Van Dyk 4000 or to obtain financing and

> failed to demonstrate any causal relationship between Xerox' patent policies, its relationship with Rank and Fuji, its marketing practices (including pricing and rental policies) or any other Xerox activities, and Van Dyk's present financial distress.

Van Dyk Research Corp. v. Xerox Corp., 478 F. Supp. 1268, 1315 (D.N.J. 1979).

It is, I believe, important to distinguish our function in review of entry of summary judgment or a directed verdict where the trial court acted as a barrier to the jury's evaluation of the evidence, and our review of the findings of fact of a district court where the judge acted as the trier of fact after evaluation of the evidence. In the latter instance, we are bound by Rule 52(a) of the Federal Rules of Civil Procedure which provides, in part, that "[f]indings of fact shall not be set aside unless clearly erroneous, and due regard shall be given to the opportunity of the trial court to judge of the credibility of the witnesses." We must accept the ultimate fact findings of the trial court unless its determination is completely devoid of "minimum evidentiary support displaying some hue of credibility" or "bears no rational relationship to the supportive evidentiary data." *Rochez Brothers, Inc. v. Rhoades*, 527 F.2d 880, 887 (3d Cir. 1975). In view of the evidence in this case of the depressed condition of the money market, the deteriorating condition of the securities market, and the other factors referred to in the majority opinion, I agree with the majority that we cannot find as "clearly erroneous" the court's finding that these factors rather than the reasons posited by plaintiff were responsible for Van Dyk's financial ills.

For these reasons, I do not believe our analysis of this issue is helped by reference to "fact of injury." There has been a recent tendency by some courts to view "fact of injury" or "fact of damage" as imposing a burden on antitrust plaintiffs in addition to that of proving liability and damage. These terms have sometimes

been viewed as code for the standing requirement and sometimes to signify that the injury complained of is not cognizable under the antitrust laws. There is no justification in the statute, policy or operative precedent to require an antitrust plaintiff to meet a burden of proving "fact of injury" which is somehow different from proof of an antitrust violation and legally cognizable damages flowing therefrom.

On the other hand, there are patently justifiable reasons why a trial court should ascertain, before embarking on a lengthy antitrust trial, whether plaintiff will be able to present some evidence that the injury of which it complains can be attributable to the alleged antitrust violation. When "fact of injury" is used in this sense, it is merely synonymous with causation and is unobjectionable, if imprecise, since it is compensable injury that is lacking rather than the injury itself. Once the antitrust trial has been completed, there is no longer any reason to speak of "fact of injury". Then, if the plaintiff does not prevail for this reason, it is not because plaintiff has failed to show the existence of damage, but because the plaintiff has failed to show that the damage is caused by the defendant's antitrust violation. The district court clearly observed the appropriate connection when it found "the plaintiff, in proving the fact of injury, must prove a direct and proximate causal connection between an alleged unlawful act and the plaintiff's alleged injury." 478 F. Supp. 1326.

I understand the majority to use "fact of injury" as synonymous with causation, and, as indicated above, agree that the trial court could find that plaintiff in this case failed to prove the alleged causation.

A True Copy:

Teste:

Clerk of the United States Court of Appeals
for the Third Circuit

APPENDIX B

UNITED STATES DISTRICT COURT

DISTRICT OF NEW JERSEY

VAN DYK RESEARCH CORPORATION,
Plaintiff,
v.
XEROX CORPORATION,
Defendant.

Civil #75-419

LACEY, D.J.

OPINION

Van Dyk Corporation (Van Dyk) charged Xerox Corporation (Xerox) with violations of the antitrust laws. The case was tried before this court, sitting without a jury. A brief description of the contentions of the parties is appropriate.

Plaintiff's Contentions

Van Dyk's amended complaint charged that Xerox had violated Section 2 of the Sherman Act (15 U.S.C.§ 2) by monopolizing, by attempting to monopolize, and by conspiring to monopolize an alleged "office copier" market, an alleged "plain paper copier" submarket, and an alleged market in toner and developer. The Section 1 Sherman Act claim (15 U.S.C. § 1) was based on agreements entered into by Xerox with Battelle Memorial Institute (Battelle), Horizons, Inc. (Horizons), The Rank Organisation, Ltd., of Great Britain (Rank), Rank Xerox Ltd. (Rank Xerox), Fuji Photo Film Inc., of Japan (Fuji), and Fuji Xerox Co. Ltd. (Fuji Xerox); and an alleged refusal by Xerox to sell or rent its copier/duplicators to customers unless they also agreed to purchase Xerox toner and developer. This alleged refusal to deal was also the basis for the claim that Xerox had violated Section 3 of the Clayton Act (15 U.S.C. § 14).

Shortly before the commencement of trial, Van Dyk abandoned all of its claims relating to toner and developer.

Accordingly, the case was tried only with respect to Van Dyk's monopoly claims and its claim that Xerox' arrangements with Battelle, Horizons, Rank, Rank Xerox, Fuji and Fuji Xerox were in unreasonable restraint of trade.

As to the monopoly claim, Van Dyk alleged that Xerox has monopolized a plain paper copier market or submarket by (1) erecting a "patent wall" to foreclose competition in plain paper copiers; (2) participating in an international cartel which illegally divided world markets and illegally pooled the cartel members' patents; (3) creating a "rental only" market environment to frustrate competition; and (4) engaging in exclusionary marketing practices.

In attempting to show that it was injured by this alleged misconduct, Van Dyk contended that it entered a marketplace in 1973 that had been so conditioned by Xerox to rent, rather than purchase, xerographic plain paper copier/duplicators that it was impossible for Van Dyk to market its machines by means of outright sale which it allegedly desired to do. According to Van Dyk, this "rental only" environment made it necessary for it to obtain vast amounts of capital to finance its entry into the marketplace. However, Van Dyk asserted, its efforts to obtain capital were frustrated by the sheer magnitude of the capital needed, by Xerox' alleged illegally established patent structure, and by Xerox' alleged dominant market position. While Van Dyk also claimed that it was injured by Xerox' marketing practices, including certain pricing plans, its post-trial submissions underscore that the fundamental predicate of its claim for damages is the injury allegedly arising from the supposed "rental only" environment, Xerox' patents and Xerox' market position, and what it claims were Van Dyk's resultant financial problems.

Defendant's Contentions

Xerox denied that it violated either Section 2 or Section 1 of the Sherman Act and that Van Dyk, as a result of Xerox'

conduct, suffered damages. Xerox contended that xerographic plain paper copiers alone do not constitute a separate and distinct economic market; and argued that xerographic plain paper copier/duplicators compete and have competed with, and are reasonably interchangeable with, both coated paper copiers and offset duplicators used for office copying/duplicating.

Additionally, Xerox denied that it ever has possessed monopoly power, i.e., the power to control prices or exclude competition in an economically relevant market. Instead, it asserted, new companies flooded the copier/duplicator market in the 1970's and throughout the 1960's and 1970's, Xerox was forced by competition to reduce its prices and consistently improve its products.

Addressing Van Dyk's contention that Xerox has achieved and maintained monopoly power by engaging in various exclusionary practices, Xerox contended that it achieved prominence in the copier/duplicator industry through its foresight, risk-taking and innovation; that it has marketed its products lawfully; and that it did not condition the market to prefer "rental only" over the outright purchase of copier/duplicators. In this connection, Xerox argued that it was customer preference that dictated Xerox' marketing strategy; and it contradicted Van Dyk's claim that it was forced to rent rather than sell its machines, stating that Van Dyk consciously elected to rent because a rental program best suited its own purposes and objectives.

Next, responding to Van Dyk's claim that Xerox has attempted to monopolize a relevant market, defined to include both coated paper and xerographic plain paper equipment, Xerox contended that Van Dyk failed to establish either a specific intent to monopolize or a dangerous probability of success, prerequisites to a finding of an unlawful attempt to monopolize.

As to damages, Xerox denied that any conduct on its part caused injury to Van Dyk.

Finally, it should be noted that many of the claims made and defenses raised in this trial were also asserted in *SCM*

Corporation v. Xerox Corporation, Civ. 15,807 (D. Conn.), tried before United States District Judge Newman and a jury between June 20, 1977 and August 16, 1978.

The parties' analysis of this case indicates the following: the jury rejected certain of SCM's claims but awarded SCM damages on other claims in the amount of $37.1 million. Judge Newman entered final judgment on the verdict as to those claims where the verdict was in favor of Xerox, setting aside the verdict to the extent it awarded SCM money damages. He deferred action on SCM's equitable claims. He certified appeal pursuant to 28 U.S.C. § 1292(b).

On May 10, 1979 the Second Circuit Court of Appeals returned the matter to the district court, directing it to formulate what it regarded as the controlling question of law, and the matter is presently before the Court of Appeals.

While Van Dyk had at one time sought to have this court apply the doctrine of collateral estoppel to resolve here issues decided in *SCM,* leading to a delay in the filing of this decision, that motion has now been withdrawn.

FINDINGS OF FACT

1. Van Dyk is a corporation organized and existing under the laws of the State of New Jersey. Its principal office is in Whippany, New Jersey.

2. Xerox is a corporation organized and existing under the laws of the State of New York. Its executive offices are in Stamford, Connecticut.

3. Van Dyk's complaint against Xerox charged it with violations of Sections 1 and 2 of the Sherman Act and Section 3 of the Clayton Act. Subsequently, Van Dyk filed an amended complaint, which Xerox answered denying liability. The case was tried before this court, sitting without a jury, between July 12, 1978 and August 17, 1978.

4. The original name of the Xerox Corporation was Haloid Company (Haloid). In 1946 Haloid was based in Rochester,

New York and was primarily engaged in the business of manufacturing photographic paper and photostatic copying machines called Rectigraph machines. A small company, for the year ended December 31, 1946 Haloid's net income before taxes was $101,393.

5. In 1946 Haloid's management was unsure about its future. Its president, Joseph C. Wilson, was searching for a new enterprise for Haloid. Against this background, Dr. John H. Dessauer, Haloid's Vice-president of Research and Development, read about a new process called "electrophotography" in a monthly abstract bulletin published by the Eastman Kodak Company (Kodak). The article indicated that the Battelle Memorial Institute of Columbus, Ohio might wish to negotiate with companies interested in exploiting this new process or entering into license agreements with respect to it. Dessauer brought the article to Mr. Wilson's attention.

6. The process which was then called electrophotography had been invented by Chester F. Carlson, a graduate of the California Institute of Technology in 1930, with a background in physical chemistry, and later a registered patent attorney. From 1934 through the end of 1945, he was employed in the patent department of the P. R. Mallory Company, and in his spare time tried to develop a machine capable of office copying.

7. Carlson's work on the development of electrophotography began in 1935. By 1937 Carlson had conceptualized the six-step process of electrophotography. This consisted of charging a photo-conductive plate with electricity in the dark; exposing the charged plate to the lighted image of a document so as to leave on the plate a latent pattern of electric charges which corresponded to the dark areas of the document; developing the latent pattern with powder that would be attracted to the charged areas; transferring the powder image to paper; fusing the powder to the paper; and cleaning the photoconductive plate for reuse.

8. Carlson's first successful experiment was conducted with the aid of a German physicist, Otto Kornei, in 1938.

9. Carlson continued to work on the process and on improving the photo-conductor and trying to obtain a more effective developing powder. He obtained the basic xerographic patents on November 19, 1940, March 17, 1942, October 6, 1942 and September 12, 1944.

10. For a substantial period of time, Carlson was unable to interest anyone in his invention.

11. In early 1944 Carlson came in contact with the Battelle Memorial Institute. The Institute (with its wholly-owned subsidiary, Battelle Development Corporation, together "Battelle") was a nonprofit research institute located in Columbus, Ohio. Carlson told Battelle about his ideas on electrophotography and was subsequently invited to Columbus to demonstrate the process and explain its physicial principles. Battelle was interested in the process and entered into what Carlson described as a royalty sharing agreement in which Battelle would put up some of its own money for research to improve the invention in its own laboratories.

12. The agreement between Carlson and Battelle was dated October 6, 1944. It provided that, at its own expense, Battelle would sponsor research and development work directed toward improving and perfecting the inventions covered by Carlson's basic xerographic patents, as well as those covered by certain pending patent applications ("the inventions"). Carlson appointed Battelle his exclusive agent for the purpose of negotiating and granting licenses to use the inventions, together with all improvements, reissues, divisions, or betterments thereof. Subject to certain qualifications, the agreement provided that royalties received under such licenses would be allocated 60% to Battelle and 40% to Carlson.

13. After entering into the 1944 agreement with Carlson, Battelle began to seek a company which would assist it in the development of electrophotography. Accordingly, it welcomed inquiries by Haloid. Representatives of Haloid made a number of visits to Columbus to discuss the process of electrophotography with Battelle. Sol M. Linowitz, Esq., who in 1946 was a lawyer practicing in Rochester, was invited by Mr. Wilson to accompany him on one such visit.

14. Mr. Wilson believed that the process of electrophotography which he had witnessed in Columbus "might perhaps have the seed of something" but he regarded it as "very chancy." In his own words, in a memorandum dated June 10, 1946, he concluded that the "[c]ommercial usefulness of this process in the photographic or photocopying field is sufficiently remote to make impossible a reasonable estimate" as to the time or the money required for successful commercial development.

That memorandum listed many positive aspects of electrophotography justifying an arrangement with Battelle, such as the fact that electrophotography was "a dry process" and was "an extremely fast process and mechanically quite simple."

15. Despite his reservations, Wilson concluded that Haloid should try to work out an agreement with Battelle with respect to the development of electrophotography.

16. Haloid and Battelle in fact entered into an agreement on January 19, 1947. With certain exceptions, it provided that Haloid should receive a license throughout the United States and its possessions to make, use, lease, or sell products comprising any of the inventions covered by the Carlson-Battelle agreement or any inventions relating to electrophotogtaphy which Battelle might subsequently acquire. While the granting clause purported to convey only a nonexclusive license, Battelle agreed that it would not make or sell, or grant licenses to others with respect to the products licensed to Haloid, such agreement to last until ten years from the time that Haloid attained specified levels of net sales and rental fees or from the time that Haloid's research expenditures on electrophotography at Battelle were reduced below specified levels, whichever occurred first. In effect, the agreement thus granted an exclusive license. Exceptions were carved out for equipment designed to reproduce more than twenty copies, toy and model kits, and a limited number of other products. The agreement provided for an initial payment of $10,000 to Battelle and a royalty of 8% of the net sales and rental fees of licensed products.

Article Fourth of the 1947 agreement further provided that Haloid would promote the development of the Carlson patents.

Moreover, Haloid agreed to use "due diligence in prosecuting the manufacture, use, license and/or sales of said supplies, materials and equipment" at its sole expense. Battelle had announced a general policy as a nonprofit organization that any discoveries should be "licensed to corporations and all interested parties. It is not their intention to license this patent exclusively to any one company or any industry but to make it available to as many industries in as many applications as possible."

17. As part of the 1947 agreement, Battelle agreed to provide to Haloid all information which it possessed relating to electrophotography. For its part, Haloid agreed to advise Battelle of research developments which it might make and to grant to Battelle royalty-free licenses which were exclusive (except as to Haloid) with a right to sublicense. For a three-year period, Haloid and Battelle agreed to spend at least $25,000 and $12,500 per year, respectively, on research into electrophotography. Haloid's agreement to spend at least $25,000 annually on research was in consideration for certain exclusivity rights granted to Haloid under Article Seventh of the 1947 agreement.

18. The limitation to twenty copies was adopted since it seemed to be closest to the kind of business in which Haloid was then engaged. However, it became quite obvious that to make a machine which would make twenty copies and then stop was not feasible. A new Haloid-Battelle agreement was entered into in 1948 which eliminated this exception. The 1948 agreement was an exclusive license which, unless sooner terminated according to the provisions of the agreement, was to continue until the expiration date of the last patent covered thereby. The agreement also provided Haloid with the right to sublicense others, but Battelle retained the ultimate right to sublicense firms other than Haloid to manufacture equipment specifically designed to reproduce more than 20 copies of any single document.

19. The 1948 agreement continued the exception for toy kits and certain other items. In this connection, Mr. Linowitz was told by Battelle that the exception was intended to preserve

for Battelle "the one application which they were sure would work," and that "[t]hey thought that the rest was speculative . . . ." Even this exception was eliminated by a new Haloid-Battelle agreement in 1951. The primary purpose of the 1951 agreement, however, was to provide Haloid with worldwide license rights on all Battelle patents. While Xerox claims that the modification was prompted by the fact that, in attempting to obtain sublicensees, Haloid had found that there was considerable interest on the part of potential licensees in rights outside the United States, Haloid and Xerox did not thereafter grant a license covering plain paper technology outside the United States to anyone other than Fuji-Xerox and Rank-Xerox. It was not until 1955 that Xerox took any steps with respect to the international rights when it commenced to seek a foreign partner. Under the 1951 agreement Battelle still retained the right to sublicense others with respect to machines specifically designed to reproduce more than 20 copies.

20. Haloid and Battelle first publicly demonstrated the process of electrophotography at the annual meeting of the Optical Society of America on October 22, 1948. Prior to the meeting, Haloid and Battelle determined to develop a more "memorable" name for the process than electrophotography. The new name was based on the idea of a professor from Ohio State University, who coined "xerography," combining the Greek words "xeros," meaning "dry," and "graphein," denoting "writing." The trade name "Xerox" was developed later. Mr. Wilson wanted a name like "Kodak," which suggested a short name in which the same letter would occur at both the beginning and end of the word.

21. Until 1948, the bulk of the research and development work on xerography was sponsored at Battelle by Haloid. Beginning in 1948, Haloid began to do some work on xerography in its own laboratories, a research effort which eventually outstripped the efforts at Battelle. Between 1949 and 1962, Haloid (later Xerox) and Battelle worked closely on research and development work. The general direction of research at both Haloid and Battelle was the responsibility of Dr. Dessauer.

Through the late 1950's Haloid and Xerox' research facilities were operated with difficulty. The dominant patents through the mid-1960's covered inventions by either Carlson or Battelle scientists, not by Xerox employees. In 1966, of the seven dominant patents owned by Xerox, two were Carlson patents and the remaining five were patents obtained by Battelle scientists.

22. Carlson moved to Rochester about 1948 and served as a consultant to Haloid. He saw immense potential in xerography. He was concerned that inventions were "piling up" but that corresponding patent applications were not being prepared, inducing Haloid to take steps to insure that it acquired adequate patent protection for its inventions.

23. By the end of the 1940's, Haloid managed to develop a machine which operated on xerographic principles, the so-called flat plate machine. While it embodied substantial advances in the process of xerography, the flat plate equipment was not automated. It required the operator to walk from one machine component to another, first charging a selenium coated plate, then carrying the plate to a camera, inserting the plate in the camera and exposing the plate to the document to be copied, and then proceeding manually through the steps of developing the latent electrostatic image, transferring it to a sheet of paper, and, finally, fusing the image to the paper by inserting the paper in a heat fuser or what was referred to in the company as the "pizza oven." The flat plate equipment was slow and required a great deal of dexterity.

24. Haloid assumed that the slow unautomated flat plate might be marketed as a copier, but this proved unrealistic. The flat plate could not be sold as a copier but it was found that it could create "masters" for offset equipment.

25. By 1955, Haloid developed a machine called the "Copyflo." As originally designed, the Copyflo machine produced a continuous flow of xerographic copies from microfilm. It weighed several tons and was over seven feet long as well as over six feet in height. Later, a document copying feature was added to the Copyflo. However, the machine could not be employed as a general purpose copying/duplicating machine. It

was effective only in copying a continuous flow of documents and was designed for users such as insurance companies which had a stream of documents which would flow through the machine at a rate of thousands per day.

26. The engineering advances in the Copyflo make it significant in the history of the Haloid Company. Even though the market for the Copyflo did not prove to be major, the Copyflo made a significant contribution to Xerox' sales.

27. In 1956, Haloid and Battelle again changed the arrangements between them. By an agreement effective January 1, 1956, Battelle assigned the four basic xerographic patents to Haloid in return for 50,000 shares of Haloid stock. Battelle received another 5,000 shares of stock for agreeing that the exclusive license under the 1951 agreement should be regarded as "fully paid-up" until December 31, 1958. As of January 1, 1959, Battelle agreed to assign to Haloid all of its remaining xerographic patents and, in return, Haloid agreed to make certain payments to Battelle in each of the years 1959 through 1965, 50% of which (subject to certain limitations) were to be in the common stock of Haloid. Battelle further agreed to convey to Haloid any patents, inventions, know-how, etc., which it might have in the future, relating to xerography, but only so long as Haloid maintained a research program in xerography at Battelle funded in the sum of at least $25,000 per year. As a result of the 1956 agreement, Battelle lost its sublicensing rights with respect to machines specifically designed to reproduce more than 20 copies of any single document which it had retained since 1947.

28. Xerox claims, and I find, that a purpose in entering into the 1956 agreement was avoidance of the cash drain on the company posed by the royalty obligations. Also, since the patents acquired from Battelle became assets of Haloid which could be amortized, the 1956 agreement served to reduce taxes and thus increased Haloid's cash flow.

Also in 1956 Xerox entered into an arrangement with Horizons. This arrangement was not in restraint of trade.

29. Under their 1947 agreement, Haloid and Battelle initiated research into, and development of, the process of xerography. Their venture, which was expanded by the 1948 and 1951 agreements, pioneered the successful commercial development of the xerographic process.

30. In 1956 Haloid concluded an agreement with Rank of England. Under that agreement, Haloid and Rank each became a 50% owner of a joint-venture company, Rank Xerox, which was given an exclusive license under Haloid's xerographic patents to manufacture and sell outside the United States and Canada. Subsequently, in 1960, Rank Xerox entered into an agreement with Fuji to create Fuji Xerox, a jointly-held company operating in Japan. Under this arrangement, Rank Xerox granted Fuji Xerox an exclusive license for ten years to manufacture and sell in Japan under Rank Xerox' xerographic patents and granted a nonexclusive license to Fuji Xerox with respect to other Far Eastern countries. 31. In the middle and late 1950's, Haloid pursued extensive research and development efforts in xerography and other areas.

During the period 1950-1960, there were yearly increases in sales and net income. The 1960 Annual report stated:

> Sales and rentals and net income before taxes reached new highs in 1960, the eleventh consecutive year in which new records have been set.

Expenditures for research include payments made by Haloid and Xerox to Battelle and others for xerographic research. Throughout this period, others, primarily United States government agencies, financed research in xerography at Xerox.

32. While pursuing its research and development work, Haloid and Xerox offered licenses for coated paper technology (electrofax), but not with respect to plain paper technology. Xerox' policy was not to license patents covering plain paper copier technology, a policy which continued through the 1960's and into the 1970's.

Haloid's early licensing efforts met with little success because of the speculative nature of the process, although in the 1950's it licensed IBM, RCA, General Electric, General Dynamics and Bell & Howell. In 1957, Haloid made license offers to some 126 companies which it considered might be interested in xerography. Few companies responded, and only one sublicense was granted as a result of the effort.

33. Haloid reserved for its own development the application of xerography to copying/duplicating on plain paper. During the 1950's and 1960's the company granted no licenses or sublicenses for this application. As Mr. Linowitz put it, "we would not issue a license to make the same machine that Xerox was trying to make . . . we had invested millions of dollars, endless years of work and research . . . and [we felt] we ought to be able to take a small part of this whole field and make that our own. . . ."

34. Haloid's name was changed to Haloid-Xerox, Inc., in 1958 and to Xerox Corporation in 1961.

35. The long-term objective of the research and development efforts at Haloid and Haloid-Xerox was an automated general purpose copier. In 1956 the company started to draw up the specifications for such a machine. 36. This project, described in 35, *supra*, resulted in the development of the Model 914 copier, which was introduced in 1960.

37. Haloid-Xerox considered the possibility of having IBM manufacture and market the 914 because of concern that its existing sales and service organization would be inadequate if the 914 project was successful. In the early part of 1958, IBM representatives were shown a prototype model of the 914, together with an experimental machine stage of the more compact Model 813, which was about two years behind the 914 in terms of development. While indicating an interest in manufacturing and marketing the two machines, the IBM representatives stated that they wished to study the matter further. Subsequently, Haloid-Xerox learned that IBM had

retained the firm of Arthur D. Little, Inc. (Little), a well-known consulting firm, to make a marketing research study to determine the potential market for the 914 and the 813.

38. While Little was pursuing its study, Mr. Wilson appointed a committee to determine whether, if IBM advanced a proposal to manufacture and distribute the 914 and 813, Haloid-Xerox should respond affirmatively. Mr. McColough prepared a portion of this committee's report in which he highlighted the "Risks and Disadvantages to Haloid Xerox" if it were to manufacture and market these machines by itself. These risks included the fact that the company simply had no manufacturing facility capable of manufacturing the 914; that the current sales and service organizations were inadequate to take on a major new product line; and that, because it was envisaged that the bulk of the machines would probably be rented, the company would require large amounts of capital to provide for the rental inventory.

39. Mr. McColough felt strongly that, "despite the disadvantages, despite the risks," Haloid-Xerox should undertake the manufacturing and marketing of both the 914 and 813. He pointed out in his part of the report that: "[W]hile there may be less risk of *loss,* there will also be decreased possibility of gaining substantial long-range profits than if we do the job ourselves." He also stated that:

> In addition, and of great importance, we would end up with a very powerful manufacturing and marketing organization ready and anxious for new opportunities for growth and profit.

This view was the consensus set forth in the committee's report.

40. Before Mr. Wilson had occasion to determine whether he would accept or reject the recommendation of the committee, he was informed that IBM had decided that it was not interested in manufacturing and marketing either the 914 or the 813. This rejection came as a shock to Wilson and others at Xerox.

41. Xerox had also received a negative report on the 914, this time from a technical point of view, from representatives of

Bell & Howell. Xerox had demonstrated the 914 for Bell & Howell in the latter part of 1958, subsequent to the IBM demonstration but prior to the IBM turndown. Bell & Howell engineers were critical of the 914's moving lens design, and Bell & Howell subsequently expressed lack of interest in the machine.

42. On the other hand, the same report also said:

> We do not know of any equipment under development which would be directly competitive in performance with the Model 914. It would appear, therefore, that the Model 914 would occupy a unique position at the time of its proposed market entry.

43. The marketing pattern at this time was seen as limiting the market even for the 813. Concern was felt too over the emergence of electrofax competitors. IBM believed the 813 was not a good business risk.

44. After the IBM turndown the management of Haloid-Xerox determined that the company should proceed forward and market the 914 and 813 on its own. The Xerox 914-813 Study Committee had recommended that Xerox proceed on its own prior to the time IBM had notified Xerox of its decision.

45. It was important for Haloid-Xerox to succeed in marketing the 914.

46. The 914 was highly successful. The success of the machine was attributable not only to the fact that, as plain paper copier, it represented a "technical breakthrough" in duplicating, but also to Haloid-Xerox' marketing and pricing. In the year of the 914's introduction, Xerox reported:

> The 914 Copier, a completely automatic printer, offers a versatility unmatched in the market today for high-quality, convenient copying of documents.

47. Xerox considered the alternatives of selling the 914, renting it on a flat monthly or yearly basis, or renting it on a usage basis. Most competing machines were small and relatively inexpensive to manufacture and sold for a few hundred dollars each. Since the direct manufacturing costs of the 914

(apart from research aad development costs) would be over $2,000 per unit, any selling price that it would put on the machine would look so high, compared to what the market was used to with a new product from an unknown company, that the 914 would not have any real receptivity whatever in the marketplace. Xerox also reached similar conclusions with respect to a flat rate rental. It determined that a rate that would be reasonably profitable would be considered so high by many customers that it would dramatically limit the market.

48. The marketing strategy ultimately adopted by Haloid-Xerox was to lease the machines at a low monthly minimum and essentially charge the customer on the basis of usage, that is, on the basis of the number of copies which the customer made.

49. The machines were rented under leases which the customer could terminate on fifteen days' notice. While at the outset this posed a risk for Xerox in that its entire population of copiers was exposed to cancellation because of competition or customer dissatisfaction, it was quickly apparent that the 914 would be successful.

Xerox' 1959 Annual Report described the "enthusiastic reception" given to the 914 and stated:

> [O]ur experience in the few locations where the [914 has] been in use during 1959 leads us to be optimistic about the reaction of the market to the 914 copying machine.

Within a few months after its introduction, the Xerox 914 demonstrated its potential. In its 1960 Annual Report, Xerox stated:

> [T]his year's effort to enter the office copier market met with great success. The Xerox 914 Copier has been exceptionally well received by the market.... [T]he number of orders taken during the first nine months of the Xerox 914's commercial life was substantially more than we had thought possible. Perhaps of equal consequence, the average use for the machines installed has been much higher than our projections.

For 1961 Xerox reported:

> The 914 Copier Is A Success
>
> The success of the 914 Copier was the most important reason for our record year. The effectiveness of this first entry into the competitive field of office copying can be shown by the depth of our penetration into the market. We believe that the 914 Copier has become one of the more significant copying machines of North America.
>
> This machine has been received very enthusiastically—more than we dared hope. The average use of these machines was greater than we expected and the number of orders received was above our forecast. We enter 1962 with a higher backlog than we anticipated.

50. When the Model 914 was first shipped to customers on March 1, 1960, the marketplace consisted of coated paper copying equipment employing such processes as dye transfer, thermal activation, diffusion transfer and diazo. Thus, when the Model 914 was introduced, Minnesota Mining and Manufacturing Company (3M) had the Thermofax machine (thermal-activated), and Kodak had its Verifax machine (dye transfer). There were, however, no plain paper copiers. Thus, by 1965 Xerox had captured approximately 80% of the United States market defined to include both plain and coated paper copiers.

51. Shortly after the introduction of the 914, two new copying processes came on the market, the electrofax and dual spectrum technologies. Electrofax machines employ a xerographic process in which the paper itself, coated with a photoconductive material such as zinc oxide, serves as the photoconductor. In the electrofax process, electrostatic images are developed directly on coated paper rather than, as in the case of Xerox equipment, first being developed on a drum or plate and then being transferred to plain paper.

Xerox had worked in the development of the electrofax process and had granted electrofax licenses to competitors during the 1950's and 1960's, while requiring, in addition to

royalties, a grant-back of all inventions of the licensee including plain paper copier technology.

52. The Model 914 was designed for short-run duplicating work, as well as copying, so that it might compete with mimeograph equipment, equipment using spirit masters, and offset duplicators. In the offset process, an inked image is transferred from a "master" to a rotary blanket and then to plain paper. Typically, offset duplicators operate at a high rate of speed and produce very high quality prints.

53. The Model 2400, introduced in 1965, operated at the rate of 40 copies per minute, as against 7 copies per minute of the 914. In 1969, Xerox introduced an even faster machine, the Model 3600, which copied at a rate of 60 copies per minute. Both the 2400 and 3600 were marketed on the basis of "modal" price plans, in which the price per copy drops after a prescribed number of copies are made from an original, *e.g.*, four cents for each of the first five copies from an original, and then two cents for each additional copy from the same original. Xerox also introduced the Model 7000 in September 1969. The 7000 operated at the same speed as the 3600 but featured a reduction capability. These products were designed to compete with offset as well as with coated paper copiers.

54. Xerox confronted plain paper copier competition as it entered the 1970's, starting with IBM's Copier I in 1970. As to the Copier I, and its impact, in 1972 Xerox Chief Executive Officer McColough stated:

> [W]e had the first plain paper copier, as we call it, and to date the only real competiton we have had with some minor exceptions in Japan is from IBM. They've been in the market since April 1970 and while I'd say they are rough competitors, impact on our revenue and profits has been very, very small.

Xerox instituted patent litigation against IBM immediately after introduction of its Copier I in 1970.

The Copier I was followed by Japanese models. These Japanese plain paper copiers were primarily low volume machines.

In the mid-1970's came high-speed copier/duplicators such as the IBM Copier III and Kodak's Ektaprint 150, which has an automatic document feeder, reduction capability, superb copy quality, and stacking and stapling capability. These entered the market in 1976; difficulties were later experienced by both companies causing Kodak to "go slowly" and IBM to cease making new placements of the Copier III.

Coated paper technology continued to improve as did fully automatic offset duplicators.

55. Xerox introduced new copiers in the 1970's. In 1971 Xerox introduced its Model 4000, a compact machine which was nevertheless able to operate at the rate of 45 copies per minute, and which possessed duplexing capability, *i.e.*, the ability to make copies on both sides of a sheet of paper. Further, in 1974, it introduced its Model 9200, which operated at the rate of 120 copies per minute, possessed reduction capability, was equipped with a fully automatic document feeder, and featured a computerized job recovery system and what is referred to as "limitless sorting." It took Xerox seven years to develop this machine and just under $160 million in research and development costs. Xerox' best estimate of the cost of developing and producing the 9200, including capital outlays for specialized production facilities, is about $300 million.

56. Xerox' success in the field of copying/duplicating was attributable to its position as a pioneer in developing the xerographic process; to its intensive research and development efforts in xerography; to the lawful patent protection which it was able to obtain for its inventions in xerography; to its ability to develop lawful innovative pricing and marketing methods for its products; and to its continuing willingness to take risks in developing and marketing new xerographic technology. Having perceived the possibility of revolutionizing the office copier/duplicating industry, it pursued its goal with dedication, and the expenditure of millions of dollars. Success was not preordained. Indeed, IBM had seen no future in the process.

57. Van Dyk was founded in 1964 by Dr. Maxwell A. Pollack and Mr. Andrew M. Erchak. The name "Van Dyk" was chosen because it was an established name in the consulting field in which Dr. Pollack and Mr. Erchak initially intended to engage. In 1965, Van Dyk began to manufacture toners for use in Xerox copier/duplicators. Thereafter, in approximately 1966, aware of Xerox' progress, Dr. Pollack, on behalf of Van Dyk, decided to enter into the manufacture and marketing of xerographic plain paper copier/duplicators and in 1968 acquired a small facility in Hackettstown, New Jersey, in which Van Dyk commenced the development of a prototype machine. Dr. Pollack was and is very knowledgeable in the field of office copiers. More particularly, he was and is very knowledgeable as to the plain paper copier field and Xerox' position in it.

58. In 1969, Van Dyk was approached by Mayflower Securities, Inc. (Mayflower), a small investment banking firm, which proposed that Van Dyk "go public" through the sale of common stock. Van Dyk agreed and also entered into an arrangement with Mayflower pursuant to which Mayflower was given the right of first refusal for a period of five years to underwrite Van Dyk's efforts to obtain public financing. Neither Mayflower nor Van Dyk was deterred by Xerox' presence in the plain paper copier field.

59. Van Dyk completed a primitive prototype of a copier-duplicator in mid-1969 and, at Mayflower's suggestion, demonstrated that prototype to a group of potential underwriters in September 1969, the year in which Xerox introduced its Models 3600 and 7000.[1] Shortly after the public showing, Van Dyk successfully completed, through Mayflower, a public offering of its common stock from which it obtained over $2.1 million. The offering was oversubscribed, notwithstanding the following admonition by Van Dyk to potential investors:

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[1] Also in 1969, it appears, SCM Corporation (SCM) sought from Xerox a plain paper copier patent license and was refused. SCM sued Xerox on antitrust claims founded upon such refusal and other Xerox activity. SCM Corporation v. Xerox Corporation, Civ. 15,807 (D.Conn). *See* 3, *supra.*

> [T]he investor should understand that Xerox has over 1,000 patents on the xerographic process and devices employing that process. Although the company believes that its proposed office copier does not infringe any of these patents, there can be no assurance thereof. In view of the number of Xerox patents, the underwriter has conducted no independent investigation into patentability of the company's proposed copier or into the question of whether it infringes upon any of the Xerox patents. In the event that Xerox should institute a successful patent infringement action against the company, the company may be precluded from manufacturing its copier. In any event, the diversion of funds to defend against a suit for patent infringement could impair the company's ability to finance the development, manufacture, and sale of its copier, and the initiation of such a lawsuit could substantially impede the marketability of its copier because of doubt on the part of dealers and customers that the company would prevail in the lawsuit, or because of reluctance to risk possible involvement in such patent infringement suit.

Thus it is clear that approximately four years before the Van Dyk 4000 came on the market, the plaintiff, aware of the market influence exerted by Xerox, had made the firm decision to enter into competition with Xerox and was successful in raising a considerable sum of money to aid it in its endeavor. The alleged exclusionary practices which plaintiff charges Xerox with committing during the years pertinent to this suit were, it appears, being committed by Xerox, to Van Dyk's knowledge, well before Van Dyk came on the market in 1973. Nonetheless, it was not deterred from entering the marketplace.

60. After the 1969 public offering and, indeed, through 1971, Van Dyk had ample funds for the development of the Van Dyk 4000. It carried in excess of a million dollars of marketable securities on its books throughout this period, out of total assets ranging from $3 to $5 million. Dr. Pollack, in an August 1971 letter to shareholders, stated: "Our finances remain strong and ample for our current requirements." Richard Wellbrock, one of the company's directors at that time, testified

that the company's funds were sufficient to accomplish the goals outlined in the 1969 public offering prospectus.

In the period 1970-1972, Van Dyk claims, it sought to raise funds from financial institutions and other sources, and some large financial institutions refused to lend funds to Van Dyk owing to concern about Xerox. I find that any such concern as existed was not based upon the alleged exclusionary practices of Xerox, but rather upon the fact that Xerox had become highly successful, well known and firmly established.

It is significant that by 1972, three years after it took a positive step to enter the office copier market, Van Dyk, undiscouraged by banker pessimism, remained firm on course to compete with Xerox. Meantime, IBM had come on the market with its Copier I in 1970, followed by low volume Japanese machines.

61. The proceeds of the 1969 public offering were used by Van Dyk to develop "a pre-production model" of its copier/duplicator, which was completed and publicly demonstrated as the "Van Dyk 4000" in February 1971 to a group of underwriters, the financial press and others. Thereafter, in 1972, Van Dyk made a second public offering of its common stock, again through Mayflower, through which it raised an additional $3.6 million. This second public offering was also oversubscribed, even though the prospectus for the offering again noted that the Van Dyk 4000 might infringe certain of Xerox' patents and that a patent infringement action by Xerox might "impair the company's ability to market its copier/duplicator and obtain further financing." Again, I find that the alleged exclusionary practices of Xerox had no impact upon Van Dyk's ability to raise money.

62. The $3.6 million in capital raised through the 1972 public offering was used by Van Dyk to acquire a 90,000-square-foot facility in Parsippany, New Jersey, from which the company commenced the assembly of a production line for the Van Dyk 4000. Parts were ordered, personnel were hired, and commercial production began. Once again it is noted that Van Dyk does not claim that Xerox' alleged exclusionary practices began only after the Van Dyk 4000 was marketed nor does it

claim that when it first embarked on its program for manufacturing and marketing a plain paper copier it was unaware of Xerox' alleged exclusionary practices. Indeed, it could not do so, given Dr. Pollack's knowledge of the marketplace. There is absolutely no evidence that Dr. Pollack ever contemplated turning back on his course to put Van Dyk in the plain paper copier manufacturing business or that he ever warned potential stockholders that Xerox' alleged exclusionary practices presented a grave threat to Van Dyk's success (other than the aforesaid alert about patents).

63. The machine that Van Dyk began producing commercially in 1973 was essentially a slightly faster and, in some respects, a slightly improved version of the Xerox 3600, a machine which had by that time already been taken out of production. As has been noted, in 1971 Xerox introduced its Model 4000 and, in 1974, was to introduce its Model 9200. The unit manufacturing cost of the Van Dyk 4000 was over twice the manufacturing cost of the Xerox 3600, although Van Dyk's pricing was substantially below the lowest 3600 pricing. The "xerographic engine" of the Van Dyk 4000 was virtually identical to that of the Xerox 3600 and incorporated no significant advances in the state of the art of xerography. However, the Van Dyk 4000 did possess certain technological innovations and improvements not found in the Xerox 3600.

The Van Dyk 4000 lacked an automatic or semi-automatic document feed system and lacked both reduction and duplexing capability, features that had by 1973 already been incorporated in one or more machines being marketed by Xerox or other competitors and were in substantial demand in the marketplace.

64. The Van Dyk 4000 was designed, marketed and priced to compete at the higher end of the copier/duplicator market. Dr. Pollack, whose familiarity with the copier market has already been noted, designed the Van Dyk 4000 to be competitive with offset duplicators as well as coated paper and plain paper copiers.

65. During 1971 and 1972, Van Dyk had discussions with numerous foreign and domestic firms which were interested in

marketing the 4000. These included such American firms as Litton Industries, 3M Corporation and SCM Corporation and a large Japanese trading company, Konishiroku, which in early 1973 expressed an interest in distributing the Van Dyk 4000 in the Far East and which offered to lend Van Dyk $5 million. As would be expected, certain companies expressed concern about Van Dyk's ability as a market newcomer to compete with Xerox. Van Dyk has failed to establish that any alleged exclusionary practice of Xerox gave rise to such concern. During this period, Van Dyk also considered marketing the Van Dyk 4000 on its own, principally on the basis of rental rather than outright sale. It recognized that a rental program would increase the company's initial requirements for outside funds and accordingly arranged a $3 million standby line of credit with American National Bank and Trust Co. of New Jersey which could be drawn upon as machines were placed on rental with customers. This line of credit was never drawn down.

66. Early in 1973, Van Dyk was approached by Apeco Corporation (Apeco), a Chicago-based company engaged in, among other things, the sale of coated paper copiers. Initially, Apeco was interested only in marketing the Van Dyk 4000, but in March 1973, after lengthy negotiations, the two companies agreed in principle to merge. Thereafter, on May 10, 1973, Van Dyk and Apeco entered into a formal merger agreement which called for the exchange of 3½ shares of Apeco common stock for each share of Van Dyk common stock, or a total value of $28 million based on the then current market value of the Apeco stock. Again it must be noted that, while Apeco was aware of Xerox' position in the copier field, it was not dissuaded from entering into the merger agreement; and it does not appear that at any time either Apeco or Van Dyk stockholders were advised that any of Xerox' alleged exclusionary practices was having or would have an adverse impact upon either Van Dyk or Apeco. Had the merger been completed, Van Dyk stockholders would have fared well in the stock for stock exchange, based upon the then market price of Apeco's stock.

67. Under the terms of the merger agreement, Apeco was to be the surviving corporation. The Van Dyk 4000 would be manufactured at Van Dyk's facility in New Jersey and marketed by Apeco's existing sales force. Apeco was also to be responsible for obtaining financing and, indeed, represented that it would be able to obtain ample financing for the continuing development and marketing of the Van Dyk 4000. As a part of the merger agreement, Apeco also agreed to and did lend Van Dyk $5 million, which was to be used in completing the Van Dyk manufacturing facility at Parsippany, where the Van Dyk 4000 was and would be manufactured.

Parenthetically, it is noted that Apeco's questions about Xerox' patents were answered by Van Dyk's assurances that it did not infringe said patents, as well as by its own study. That this is so is of significance in view of Van Dyk's claim here that Xerox' patent structure was so complex that competition was stifled because potential competitors were unable to analyze that structure and thus were unable to ascertain whether they could enter the plain paper copying field without infringing Xerox' patents.

Also significant, in view of the Van Dyk charge of injury because of the exclusionary nature of Xerox rental policy, is the fact that the Apeco-Van Dyk merger was agreed upon notwithstanding that Apeco and Van Dyk had determined that they would rent the 4000 equipment. Moreover, Apeco was able to get financing for the $5 million loan to Van Dyk and to arrange preliminary lease financing.

68. In September 1973, after the stockholders of both Van Dyk and Apeco had approved the merger but before the merger could be consummated, Van Dyk learned that Apeco was in default under its loan agreement with its banks, in that its balance sheet was in violation of the liability to net worth test prescribed by a covenant of the agreement, and that it would be necessary for Apeco to prepare a new prospectus and resolicit its stockholders' approval of the merger. At the same time, Van Dyk learned for the first time that Apeco's financial condition was precarious. Apeco sought an extension of the date on which the merger was to be closed, but Van Dyk

refused unless Apeco agreed to lend Van Dyk additional funds. When Apeco declined to make an additional loan, Van Dyk terminated the negotiations and the merger was called off. Van Dyk later alleged in a lawsuit between the two firms that Apeco had materially misrepresented its financial condition to Van Dyk and that these fraudulent acts had induced Van Dyk to make "substantial financial commitments" as a result of which Van Dyk allegedly suffered damages in the amount of several million dollars. This event disminished Van Dyk's ability to compete with Xerox.

Xerox had nothing to do with the merger's failure.

69. Upon termination of the Apeco merger agreement, Van Dyk found itself with "machines that were coming off the production line" but with impairment of its cash with which to pay its suppliers, with a diminished direct sales force, and with a weakened dealer organization to market the machines. Mr. Sherman, Van Dyk's Administrative Vice President, described the situation as one of "urgent financial necessity." Nevertheless, and in the face of what Van Dyk claims was Xerox' continued exclusionary practices, as well as enhanced competition from others, Van Dyk decided that there was "no turning back" and initiated what Dr. Pollack described as "a rush program . . . to provide for the distribution of the machines." Financially strapped, Van Dyk continued to search for capital after the Apeco merger was terminated and believed its best course of action was to sell to a company which had the funds to purchase and market its equipment. Thus, in 1973 Van Dyk contacted SCM and 3M and began negotiations with those firms looking toward the distribution by one of them of a substantial portion of Van Dyk's production.

70. At the same time that it was conducting negotiations with SCM and 3M, Van Dyk explored with its exclusive underwriter, Mayflower, the possibility of a third public offering. Mayflower, because of an S.E.C. investigation, was unable to undertake a public offering, thus frustrating Van Dyk's efforts to obtain additional capital in late 1973. Van Dyk alleged in a lawsuit filed against Mayflower in 1974 that Mayflower's fraudulent concealment of certain S.E.C. proceedings from Van Dyk "resulted in substantial damages to Van

Dyk both as a result of expenses incurred in the anticipation of the proposed offering and as a result of the delay in obtaining operating capital necessary to continue profitably its operations." Xerox was blameless for the diminished ability of Van Dyk to compete as a result of the financial injury sustained.

71. Van Dyk's negotiations with SCM and 3M continued through the fall and winter of 1973. In December 1973, Van Dyk concluded a marketing arrangement with SCM. The arrangement provided for the sale to SCM of 2,200 Van Dyk 4000's over a period of 24 months. Initially, these were to be delivered to SCM at the rate of 75 per month, with deliveries subsequently to be increased to 100 per month. However, the agreement also provided that SCM had the right to cancel it at any time within the first six months. If SCM chose to exercise its cancellation right, it was required to purchase an additional three months' worth of Van Dyk 4000's. The machines were to be marketed by SCM under its own trademark (SCM 6740) to end users, and it was understood that Van Dyk and SCM, would be competing with one another in the placement of machines. Van Dyk sacrificed to a degree the development of its own marketing organization and devoted much of its energies to meeting the demands of the SCM contract.

72. In May 1974, prior to the expiration of the cancellation privilege, SCM requested and received from Van Dyk an extension of the cancellation privilege until the end of June 1974. A second extension, this one for an additional six-month period, was granted in June and extended SCM's cancellation rights to the end of December 1974. Finally, in November 1974, Van Dyk agreed to still another six-month extension of the cancellation privilege. Van Dyk agreed to these extensions because, in effect, SCM had advised it that unless the cancellation privilege was extended, SCM would cancel the contract.

73. On January 31, 1975 SCM exercised its cancellation privilege and terminated the Purchase Agreement. At the time of the cancellation, SCM had purchased approximately 1225 copier/duplicators from Van Dyk.

74. Because of its placement problems, which were made known to Van Dyk, SCM was not able to place machines at the

rate that they were being delivered by Van Dyk. SCM's marketing efforts were also hampered by the lack of sorters during the first six months of the contract. The first sorters were not delivered to SCM until the spring of 1974. Because of its excess inventory of unplaced machines, SCM had sought to reduce the number of machines it was receiving every month from Van Dyk. Thus, in the spring of 1974, SCM requested that Van Dyk reduce the required deliveries from 75 machines per month to 50 machines. Van Dyk refused to accept this reduction, although the parties eventually did agree to maintain the delivery schedule of 75 copiers per month—instead of accelerating to 100 per month as required by the Purchase Agreement.

76. Cancellation of the SCM contract in January 1975 left Van Dyk with a large number of machines coming off its production line but with no means of distribution, yet only small cutbacks in production were deemed feasible. Van Dyk had begun to expand its dealer organization in late 1974 and had also proceeded to develop a small direct sales force. Van Dyk experienced no difficulty in placing machines in 1975; however, it was committed to pay large sums of money to its parts vendors but had not developed a cash flow sufficient to do so. As Dr. Pollack put it, with the cancellation of the SCM contract, Van Dyk literally was "running out of money." Xerox had nothing to do with the cancellation of the SCM-Van Dyk agreement. It is reasonable to conclude that a large part of Van Dyk's financial difficulties, leading to Chapter XI, was attributable to Mayflower, Apeco and SCM.

77. In the meantime, in 1974, Van Dyk had obtained a $1.5 million line of credit from Midlantic National Bank of Newark, a $500,000 line of credit from First National State Bank of New Jersey and, later, a $500,000 loan commitment from the First Pennsylvania Bank. In addition, a financing effort was made on behalf of Van Dyk in 1974 by Merrill Lynch, Hubbard, Inc. (Merrill Lynch), a subsidiary of Merrill Lynch, Pierce, Fenner & Smith, engaged in the business of making private placements. Merrill Lynch proposed a $10 million convertible debenture offering and actually circulated an offering brochure to a number of potential investors before abandoning the effort in mid-1974. This effort failed, in part

because of the deteriorating condition of the money markets in the United States. There was as well the uncertainty engendered by the SCM arrangement entered into in December 1973, and Van Dyk's diminished ability to compete as a result of the failure of the Apeco merger.

78. Van Dyk claims that Xerox' patent position discouraged potential inventors from dealing with Van Dyk in the period 1973-1975, but its proofs in this regard fall short of establishing that proposition. Certain contacts which seemingly aborted did so because Van Dyk entered into arrangements with Apeco and SCM. Neither of these companies was frightened away by the Xerox patent structure. Moreover, given Van Dyk's ability to raise cash, obtain lines of credit, and interest Apeco and SCM, it is difficult to believe that Van Dyk would not have been able to persuade others, had it been interested in doing so, that it did not infringe Xerox' patents. This is particularly so after Apeco's own patent study became available as a reference. Finally, by 1975, Van Dyk's financial picture had become unattractive by virtue of losses in recent years, the $5 million Apeco loan and the SCM termination.

79. In mid-1975, after the cancellation of the SCM agreement, Van Dyk once again attempted a public offering, this time of convertible debentures and warrants, through the investment banking firm of Faherty & Swartwood. Van Dyk was in financial difficulty as a result of the cancellation of the SCM contract. For this reason, because of the continued tightness of the money markets, and to a degree because of investor apprehension about Van Dyk's ability to compete with well established companies in the market, this offering did not succeed. Unable to pay its parts suppliers, Van Dyk in October 1975 filed a petition for a plan of arrangement under Chapter XI of the Federal Bankruptcy laws, where it remains today.

80. From its introduction of the 914 in 1960 until 1970, when IBM introduced its competing plain paper copier, Xerox was the only manufacturer of plain paper copiers in the United States. Even after 1970, and as of 1975, it continued to be the dominant plain paper copier manufacturer, although from 1970 on many other compaines, undeterred by this dominance, entered the field.

Van Dyk contends that at all relevant times, Xerox possessed monopoly power in a relevant market consisting of coated and plain paper copiers and submarket consisting of plain paper copiers, and had willfully acquired or maintained such power in violation of Section 2 of the Sherman Act.

From the introduction of 914 in 1960 through the present, Xerox has faced competition from other manufacturers and distributors of copying equipment. This equipment through 1970 has included principally coated paper copiers, and to a much lesser degree, offset duplicators, and spirit and mimeograph duplicators. Plaintiff contends that the relevant product market includes only coated paper copiers and xerographic plain paper copiers, with xerographic plain paper copiers comprising a submarket. The record reflects that there was and is competition between coated paper and plain paper copiers, in the same market, demonstrated by internal documents of both parties to this lawsuit, advertising campaigns, market data and the testimony of executives of both parties.

81. When Xerox introduced its first office copier, the 914 in 1960, it entered a competitive market for copiers. A variety of coated paper copiers were employed primarily to perform short run-length work, including 3M's Thermofax, Kodak's Verifax, and diffusion transfer devices from SCM and Apeco. Offset, spirit and mimeograph duplicators manufactured by Addressograph-Multigraph (A-M), A.B. Dick and others were employed primarily to perform longer run-length work, and were not in competition with the 914. The leaders in the copying/duplicating industry—A-M, 3M and Kodak—were at that time all substantially larger and better known companies than Xerox.

82. The Little Report found the office copier field to be "highly competitive," dominated by 3M and Kodak, and attuned to smaller and less expensive devices than either the 914 or 813. Moreover, it predicted the emergence within two years of at least three electrofax machines of "comparable performance" to the 813, which itself was two years away from being marketed. While the report put an end to IBM's interest in a manufacturing and marketing arrangement with Xerox,

Xerox nevertheless proceeded and tried to create a demand for the 914 (and later the 813).

83. In announcing the introduction of the 914, Mr. Wilson stated that, "in our planning for the 914, we saw a need for a machine that would serve both as a copier and a short run duplicator."

84. Xerox determined that its price, including supplies, should roughly approximate five cents per copy. The initial pricing on the 914 was 4.75 cents per copy for the first 2,000 copies and 3.5 cents per copy thereafter. Supplies were estimated to cost approximately one cent per copy. The approximate five cents per copy was founded in part on 3M's Thermofax pricing.

85. The copy volume obtained by the 914 came from various sources. First, the 914 competed with the competitive processes described above for new business. Part of this new business was attributable to the fact that the copying market was growing rapidly during this period as people were finding new needs and applications for copying. Second, the 914 both cancelled competitive devices and competed with them for copy volume at particular customer locations. Among the competitive processes which the 914 replaced or from which the 914 took copy volume were coated paper copiers.

86. In late 1961 or early 1962, Xerox experienced competition from coated paper copiers.

87. The initial pricing of the 813, a small, desk-top copier introduced in the fall of 1963, included a $10 per month use charge, and a per copy charge of 4.5 cents, with a monthly minimum of 800 copies, for $46. This pricing was developed by analyzing the existing prices of coated paper copiers, including electrofax devices by Bruning, SCM, and Apeco and non-electrofax devices such as Verifax, Thermofax, and Ozalid (which used the diazo process), and machines manufactured by Apeco and Copease. In recommending the pricing structure which was ultimately adopted for the 813, Xerox pricing and marketing personnel charted the per copy cost of those competing products against various proposed pricing plans for the 813, also having regard for the 914.

88. This initial pricing for the 813 lasted less than one year; 813 placements failed to meet expectations. The low placement rate was attributed to its high price as compared with coated paper processes. Xerox therefore reduced its 813 pricing. This change led to more 813 placements.

89. During the early-to-mid-1960's, the Xerox 914 and 813 competed with coated paper copiers, in the same product market. In choosing copying equipment, customers made tradeoffs based upon the amount which they were willing to spend and the features which they wanted to obtain. Traditionally, manufacturers of coated paper copiers have stressed the following advantages of their copiers: fast first copy out time, simplicity and resultant reliability, relatively cool and quiet operation, no need for special wiring, good solid and half tone reproduction, and price. In response, Xerox emphasized the following advantages of its xerographic plain paper copiers: no long-term commitment, plain paper copies and versatility, that is, the ability to copy on letterhead, transparencies, and other special-use copy materials.

90. Competition between various copying devices also involved "bleeding," with one machine taking copy volume from another machine at the same location. The machine losing volume may be replaced months or years later after copy volume falls sufficiently, or may never be replaced.

91. The competition in the same product market between coated paper copiers and Xerox equipment in the early-to-mid-1960's was reflected by the advertising placed by coated paper copier manufacturers. For example, advertising by SCM, Bruning and Dennison appearing in 1963-66 was directed explicitly against Xerox. The Bruning ads indicated that half of Bruning's sales came from replacing Xerox copiers, and emphasized that Bruning's copier was faster and cheaper than Xerox'. The Dennison ad stressed the simplicity and reliability of Dennison's machine, its versatility, and its inexpensive price per copy of 2.7 cents. The SCM ad highlighted price, speed and ease of operation.

92. Advertising by coated paper copier manufacturers also stressed the benefits of decentralization. For example, a

Dennison ad in 1966 pointed to the fact that "you can put a Dennison Copier right where the work is . . . there's no walking or waiting for copies at a bottleneck copying center." The same ad also stressed the simplicity and reliability of the Dennison machine as well as its low cost per copy of 2.2 cents.

93. In response to competition, Xerox continued to rely in its sales efforts upon its plain paper technology, convenience, and automation. Xerox also stressed its excellent service, the availability of parts, and the assistance which Xerox would give its customers in developing effective methods of using Xerox equipment. Xerox ads in 1960 and thereafter highlighted the benefits of Xerox' equipment over coated paper copiers, including the fact that expensive coated paper was not needed, that each copy was as good as the first, and that the machine was available without capital investment.

94. Xerox introduced its Model 2400 in September 1965. The 2400, which could copy at a rate of 2400 copies per hour, was intended to compete with offset for run-lengths up to approximately 200, while continuing to compete with coated paper copiers. Although the rated speed of the 2400 was substantially slower than that of most offset machines (approximately 7,000 copies per hour), the effective speed of the 2400 more closely approximated that of offset. Effective speed is the speed at which a device can produce completed jobs. Since offset required making a master and other preparatory steps, its effective speed was significantly slower than its rated speed, whereas the 2400 had an effective speed closely approximating its rated speed. In addition, one year after the 2400 was introduced, Xerox offered its first sorter. The sorter substantially increased the effective speed of the 2400 and made it significantly more competitive with offset. However, the 2400 did not, in fact, compete to any significant degree with offset devices. In a 1970 report Xerox admitted that customers "were generally convinced that Xerox equipment is not on a par with offset for duplicating purposes."

95. The Xerox 2400 employed modal pricing. The initial pricing for the 2400 was four cents per copy for the first three copies from a single original, two cents per copy for the next

seven copies from that original, one cent per copy for the next 15 copies from that original, and 0.5 cents per copy for all additional copies from that original. While the purpose of this pricing plan may have been to make the 2400 competitively priced for both short and long run-length, and would place it in approximate parity with offset for long run-lengths, in a 1973 memorandum to Xerox Vice President Kearns it was reported that Xerox duplicators had "a national run length of approximately three" and that Xerox had "not been all that successful in developing duplicator runs."

96. A major obstacle to the success of the 2400 in competing with offset was the resistance of managers of central reproduction departments (CRDs) to xerography. They were accustomed to offset duplicators and were concerned that xerographic copier/duplicators would be placed in the office environment and diminish the amount of work coming to their department.

97. The Xerox 2400 Duplicating Plan was introduced on July 1, 1966. It provided that the customer could make up to 120,000 copies per month, regardless of run-length, for a charge of $1,100. Thus, high-volume customers willing to commit to a $1,100 minimum obtained a per copy charge below one cent. Copies beyond 120,000 per month cost .24 cents per copy. Xerox' XDP price plan was primarily designed to encourage higher volume, rather than longer run-length copying. Thus, an XDP customer was charged $1,000 for 120,000 copies whether the increased copy volume was a result of a longer run-length work, characteristic of OSM (offset, spirit, mimeograph) devices, or merely more short run copying. A 1970 Xerox document states:

> XDP does not encourage significantly different run lengths than are produced on the regular commercial plans. The average run length on XDP machines, based on our analysis of billing units per copy, is only 3-4.

98. Xerox believed that XDP "would put the 2400 squarely in the duplicating market." XDP was also applied to the 914 and 813, where it was intended to avoid certain categories of cancellations by coated paper copiers. Nonethe-

less, the 2400 still fell short of competing significantly with the offset, spirit and mimeograph market.

99. The second change Xerox made in its 2400 pricing was to reduce regular pricing in September 1966. The charge for copies 11-25 from the same original was reduced from one cent to one-half cent.

100. Xerox stressed in its advertisements for the 2400 that it was a "do it yourself" duplicator, equally useful in the office environment and in a central reproduction department. Xerox also emphasized the fact that anyone could make copies on the 2400 since it did not require a trained operator. At the same time, offset advertising, typified by an A-M ad appearing in September 1965, stressed lower costs at short run-lengths.

101. In the period 1966-67, several new coated paper copiers were introduced—the Bruning 3000, the Dennison High Speed and the Savin 220 (also marketed as the A.B. Dick 675). These were in competition with Xerox' equipment. The Dennison High Speed ran at 30 copies a minute. A January 1968 advertisement for that machine was aimed directly at the Xerox 2400 and 720. It highlighted the fact that the High Speed had an automatic flip-up exposure lid which assisted in the handling of documents. At the same time, Dennison advertising also continued to stress decentralization, attacking "the bottleneck":

> A Dennison High Speed, Standard or Compact Copier is so dependable, so quiet, so beautifully efficient it never needs to be located in an isolated working area. It simply fits into any normal floor plan, right where the work is, with no walking, waiting, or costly delays of any kind.

102. In the offset area in the mid-to-late-1960's, offset manufacturers made two innovations designed to obtain the shorter run-lengths generally serviced by xerographic plain paper copier/duplicators and coated paper copiers. First, table-top offset machines were introduced. These small and compact machines were ideally suited to an office which wanted offset quality, speed or features, but could not accommodate the larger offset devices. A-M advertised that its table-top offset equipment could put "duplicator-room capability in any handy place," and was "so easy to use that anyone who can use a

copier can run it." A.B. Dick also highlighted ease of operation. Table-top offset devices were also introduced by A.B. Dick and Rotoprint.

In 1968 Xerox reported that it intended to market offset equipment manufactured by Rotoprint and announced that such equipment would "extend our range of services into new markets."

103. Offset devices gradually became easier to operate. A-M introduced the Model 2650, which it advertised under the heading "It's June, and A-M has Just Married the Simplicity of a Copier to the Speed of a Duplicator." That advertisement stated that the A-M 2650 was useful for run-lengths between 5 and 5,000. It also stated that one could be trained to operate the 2650 in about two minutes, thus challenging Xerox' claim that its machines were easier to use than offset. Later in the 1960's, A-M introduced a further advance in automated offset, the AMCD. As Dr. Pollack of Van Dyk has testified, the AMCD was intended to compete directly with xerographic plain paper copier/duplicators:

> As I understand it the target market [of the AMCD] was precisely that of say the Xerox 3600 or the Van Dyk 4000. They were shooting for the same market. They have other equipment which goes into the true printing establishments.

A-M's advertising confirms that understanding, stating that the AMCD is "made to compete in a tough market . . . the bond paper copier market."

104. Beginning in 1967 and continuing thereafter, certain coated paper copier manufacturers, including Dennison, Apeco, Bruning, SCM, and Litton, offered at least some of their customers "fleet plan" pricing. Under these fleet plans, the customer was offered a substantial discount if it guaranteed a certain amount of business per month or per year to that manufacturer.

105. Fleet plan pricing was substantially below Xerox pricing. As a result, Xerox incurred losses to coated paper

competition in this period, and additional losses were threatened.

106. Aside from soliciting individual customers, the coated paper copier manufacturers advertised these fleet plans. For example, Bruning advertised in March 1967 that its fleet plan provided a low guaranteed cost per copy for any customer with a total average monthly volume of 50,000 copies and an average monthly volume per machine of 6,000 copies.

107. The Dennison Automatic Budget Control Plan offered a price of 3.1 cents per copy to a customer making 105,000 copies per month. Copies beyond 105,000 a month cost only 2.3 cents per copy.

108. SCM's Coronastat Copy Service Consolidation Plan guaranteed customers a fixed low price if they agreed to make 30,000 copies per month or more. For each 6,000 copies of guaranteed usage, the customer would be entitled to one SCM Coronastat 55 coated paper copier. For each 3,000 copies, the customer would be entitled to an SCM Coronastat 44 coated paper copier. Once the minimum for the customer's total fleet of machines was met, all additional copies were two cents each.

109. In a May 1967 competitive report, Xerox analyzed the pricing on fleet plans offered by A-M, SCM and Dennison. Each was substantially lower than comparable Xerox pricing at each copy volume analyzed.

Xerox' internal documents show that during the month of April 1967 Xerox' total machine population was reported to be 193,226. Of these machines, 8,483 were cancelled during this period. Of the 8,483 machines cancelled, 1,852 were not replaced at all. Of the 6,631 machines which were replaced, 5,133 were replaced ["churned"] by other Xerox machines. No Xerox machines were reported to have been replaced by offset, spirit or mimeograph devices.

110. In response to this competition from fleet plans and in response to pressure from its largest customers for a price reduction, Xerox introduced its Machine Utilization Plan (MUP). Under MUP, as originally instituted, major accounts were offered volume discount prices lower than Xerox' regular

prices if they committed themselves to annual revenues with Xerox of $480,000. In 1971 Xerox introduced three different MUP plans with progressively greater revenue commitments—MUP A ($360,000), MUP B ($480,000) and MUP C ($960,000). Aside from committing themselves to that annual revenue, MUP customers were also committed to pay higher minimums per machine. The discount afforded by MUP pricing left Xerox' prices higher than coated paper fleet plan prices, but the differential between Xerox and coated paper returned to approximately what it had been prior to the introduction of fleet plans.

111. Aside from the introduction of fleet plans, coated paper copier manufacturers also continued to introduce new and improved machines. Olivetti introduced its Copia, Apeco introduced its Rollamatic and Dialamatic, Litton introduced its Royfax 1300 and 1700 machines, Saxon and Remington introduced 30-copy-per-minute devices, 3M introduced its Model 209, and Pitney-Bowes introduced a new machine as well.

112. In 1969, Xerox introduced its Model 3600, which produced 3,600 copies per hour but was otherwise similar in features to the 2400. The initial pricing on the 3600 was a combination of modal pricing and volume discounts. The first ten copies from each original were charged on a volume discount basis—3.8 cents per copy for the first 20,000 copies per month, 1.7 cents for the next 20,000 copies in that mode per month, and .6 cents per copy for all additional copies in that mode. Copies over 10 from the same original were all priced at .6 cents per copy regardless of monthly volume. Xerox' intent in pricing the 3600 in this manner was to compete effectively both for high volume, short run-length work with the volume discount, and for long run-length duplicating with modal pricing.

113. Xerox attempted to place the 3600 in central reproduction departments, and placed advertisements specifically directed toward such placements, stressing the speed and convenience of the machine. Mr. Vincent D'Angelo, Van Dyk's General Sales Manager, commented that "many people are using [the 3600] as an offset machine."

114. Later in 1969, Xerox introduced the 7000, which was similar to the 3600 except that it could reduce original documents to smaller sizes. For example, the 7000 could reduce an 11″ × 17″ original to letter size. The 7000 was priced identically to the 3600, except for an additional features charge of $100 per month for reduction. The 7000 was extremely successful in the marketplace.

115. The reduction capability of the 7000 was important, since certain offset master-makers had had reduction capability for years. The reduction feature on the Xerox 7000 was used in approximately 6% of the jobs performed on that copier.

116. Xerox offered alternatives to its regular pricing for the 3600 and 7000, generally known as duplicator plans, to aid Xerox in competing with offset for duplicating work, and advertised it as such.

117. One such plan was known as the Duplicating Plan (DP). Under the Duplicating Plan, which was introduced in April 1970, the customer paid 15 cents for the first copy from an original and one-half cent per copy thereafter. Xerox hoped that DP pricing would obtain additional long run-length work for Xerox by appealing to managers of central reproduction departments through its obvious comparability with offset costs.

118. Xerox' DP pricing plan was successful in attracting long-run duplicating work. In November 1970 Mr. William Souders, Xerox' Marketing Vice-president, reported that:

> The DP plan appears to have attracted customers with significantly different run length patterns than our customers on regular pricing. The average run length has been between 15 and 20 throughout the life of the program.

However, the national average run-length on Xerox' 2400s, 3600s, and 7000s was 3-4, far lower than the run-lengths commonly produced on offset machines.

119. Another pricing plan adopted for the Xerox 3600 and 7000 was the DUO plan. DUO pricing was introduced in December 1970 and provided for a charge of 4.5 cents for the first five copies from an original and one cent per copy

thereafter, to offer competitive pricing for both short and medium run-lengths. While, in devising DUO pricing, Xerox considered as bench marks the pricing of both coated paper copiers (for short run-length work) and offset devices (for medium run-length work), Xerox charged an average 30% premium above the AM 150 offset press and, at the higher monthly copy volumes at which the offset press was more likely to be used, Xerox' 7000 DUO pricing was over 40% higher. Additionally, Xerox' 7000 DUO pricing averaged a 37% premium above Dennison's pricing on its "High Speed" coated paper copier.

120. Another pricing alternative offered by Xerox on its 3600 and 7000 was Duplicating Charge (DC) pricing, introduced in 1975. Under Duplicating Charge pricing, the customer paid 4.25 cents per copy for the first five copies from each original, and a $270 monthly duplicating charge, which covered 90,000 copies in the 6+ mode. Copies beyond 90,000 in the 6+ mode were priced at .3 cents each. DC pricing was intended to enhance the ability of Xerox' 3600s and 7000s to compete successfully against offset for long run-length work. The DC-5 price plan subsequently adopted by Xerox for the 2400, 3600, and 7000 was a variation on DC pricing, which appealed to those customers who would not make 90,000 duplicating impressions a month and would thus not obtain the full benefits of DC pricing as instituted in 1975.

121. Competition between Xerox plain paper copier/duplicators and various coated paper copiers and offset devices is reflected by entries in Xerox' Encyclopedia of Application Sales Ideas (EASI). Xerox' salesmen were encouraged to forward a description of their successes against competitive processes to Xerox headquarters so that other Xerox salesmen could learn from these experiences. The four incidents set out below are typical of those received:

(a) One EASI report concerned the Hayden Stone brokerage firm, which made 80 copies of certain newspaper and magazine clippings for its training classes. It previously made those copies with an Itek master maker and an A-M 1250 offset duplicator. A Xerox salesman convinced Hayden Stone to use a Xerox 3600 to peform that job. Because of the time required to

make a master on an Itek machine, the Xerox method was quicker and more convenient.

(b) A second EASI report showed that the Greater Mount Lebanon Multilist Group formerly compiled a list of homes for sale, and obtained 400 copies of the list by sending it to an outside printer, which took approximately 10 days. Xerox obtained the business with a 3600, and the turnaround time was shortened dramatically.

(c) Another EASI report concerned the production of forms at the Hi-Life Packing Company. Hi-Life previously made forms in bulk, using a mimeograph duplicator for runs of less than 1,000 and sending runs greater than 1,000 to an outside printer. Hi-Life replaced that system with a Xerox 2400 and made runs of only 500. When the supply was depleted, a second supply of 500 was run. This "job splitting" reduced the risk that the supply of forms would become obsolete.

(d) The final EASI report in evidence concerned the Derby Refining Company, where oversized schedules, accounting worksheets, and computer printouts were being copied on a Dennison High Speed coated paper copier by making two passes and taping the copies together. By using a Xerox 7000, one pass would produce a reduced-size copy, thus eliminating the inconvenience of taping the parts together. Using the 7000 to reduce oversized documents was a successful application in many industries.

122. Xerox also trained its salesmen to sell against processes such as offset and coated paper by preparing manuals concerning the reprographic needs of particular industries. Such manuals were produced for the banking, transportation, insurance, architecture, construction, engineering, education, petroleum, textile and retailing industries. The manuals often focused heavily upon systems and forms work available to Xerox in those industries. For example, the banking manual concerned itself with systems, forms and general duplicating work which Xerox could obtain, and which was then being performed by other processes.

123. The Xerox 4000 was introduced in July 1971. The 4000 operated at 2700 copies per hour, slightly faster than the

2400. However, it was significantly smaller and quieter than the 2400, thus meeting Xerox' goal of developing a substantially smaller machine than the 2400 but with the same speed. It also had automatic duplexing capability.

124. The Xerox 4000 competed with coated paper copiers and plain paper copiers such as the IBM Copiers I and II, as well as with other Xerox plain paper copiers. At Kemper Insurance Company (Kemper) the 4000 replaced a 3M Thermofax coated paper copier in the early 1970's, but was itself replaced by an IBM Copier II in 1974 or 1975, apparently because Xerox gave poor service in maintenance and repair. There is no evidence that the Xerox 4000 replaced any offset machines.

125. In 1970 IBM introduced a xerographic plain paper copier—the IBM Copier I. It produced ten copies per minute with excellent copy quality and reliability. Shortly thereafter, IBM introduced a pricing feature called "Top-Stop," which provided for a maximum monthly charge so that copies beyond a certain ceiling were free. IBM highlighted "Top-Stop" in its advertising. IBM's worldwide reputation and tremendous marketing force made the machine a competitor though not immediately a significant one.

126. In 1972 IBM introduced its second plain paper copier, the Copier II. The Copier II, which was demonstrated to the court, made 25 copies per minute, had excellent copy quality and reliability, and had the first semi-automatic document handler. The document handler permitted the user to place originals on the platen quickly and conveniently, and automatically removed the originals from the platen. This increased the effective speed of the Copier II so that, given a particular run-length, it was roughly comparable to a 40 copy-per-minute device without automatic document handling. Top-Stop was again employed on the Copier 11, which had a minimum of $275 per month, a charge of 2.3 cents per copy, and a maximum of $830 per month. The Copier II was competitive with the Xerox 4000, 2400 and 3600. Its pricing was lower than Xerox' pricing even before the Top-Stop level was reached and was substantially lower thereafter.

127. In the years that the IBM Copier II has been on the market, customers have perceived it as an excellent machine.

128. Van Dyk was advised by its customers of the acceptance of the Copier II, and particularly its document handler. Van Dyk expected IBM to be successful.

129. In the early 1970's competition for plain paper copiers from coated paper copiers remained about the same, with new companies entering the field with high speed devices. Improved offset devices also made their presence felt.

130. The VQC, which was demonstrated for the court, is a 20 copy-per-minute desk-top copier. It produces copies on paper which is extremely white and quite similar in feel to plain paper. The VQC has an extremely fast first-copy-out time of six seconds and a "versatility bypass" feature which permits the user to feed cut sheets of paper into the machine without removing the paper roll. It has a large platen so that oversized documents can be copied, makes good copies of solids and half tones, is simple to use and may be plugged in anywhere without the need for special wiring. 3M has engaged in heavy national advertising of the VQC, relying upon the features described above. The VQC has been a very successful device, with over 30,000 units being placed. Texaco alone acquired 125 VQC's, which average 27,000 copies per month today.

131. Another leading coated paper manufacturer during this period was Pitney-Bowes with its 263, producing 60 copies per minute, and its 262, producing 30 copies per minute. The 263, with the speed of Xerox models such as the 2400 and 3600, was advertised in 1972 as the world's fastest desk-top book copier. Aside from the speed of the 263, Pitney-Bowes also emphasized its reliability as compared with xerographic plain paper copiers from Xerox. The 262 had a fast first-copy-out time of six seconds, could copy from books, and could be purchased for under $1,900. Pitney-Bowes advertised the 262 by relying upon testimonials of persons who had replaced Xerox copier/duplicators with that machine.

132. As to the coated paper Minoltafax machine, Minolta's advertising for this machine, which has reduction capability, billed it as a head-to-head competitor with Xerox, employing titles like "Spend Six Months with Xerox and You Will Appreciate Minoltafax." Minolta advertised the fact that its machine had a flat platen, which it viewed as superior to the curved platen employed on the Xerox 2400, 3600 and 7000.

133. Coated paper copier companies continued in the 1970's to stress cost and decentralization as they tried to sell against Xerox and other xerographic plain paper manufacturers. Price competition from coated paper manufacturers has been more intense in the 1970's than it had been in the 1960's, and the devices themselves are faster and better now than they were in the 1960's.

134. Xerox sustained significant losses to coated paper copiers in 1971-1972, in the midwest Xerox lost substantial business at Indiana Bell to Saxon; at Commonwealth Edison to Minolta; at Standard Oil of Indiana to the A-M 5000 (approximately 100 machines lost); at Sears Roebuck to SCM; at Ford to Dennison and A-M; at Inland Steel to the A-M 5000. Xerox machines were cancelled by the A.B. Dick 655 and the A-M 5000 at Sun Oil, formerly a MUP B customer. Xerox lost 74 machines at Sohio, formerly a MUP A customer. Xerox also lost machines to coated paper copiers at Stanford University and United States Steel. Finally, Xerox encountered coated paper competition from Dennison in selling to the federal government.

135. Plain and coated paper copiers were considered reasonable substitutes for one another during this period. For example, in 1972 Herbert Getzler of Copylease Corp analyzed the copying needs of Title Insurance and Trust Co. of Los Angeles and made recommendations concerning how it could satisfy its copying requirements at the lowest possible cost. He recommended the replacement of several Dennison coated paper copiers with Xerox 2400's and 720's and replacement of other Dennison coated paper copiers with Litton coated paper copiers. Getzler noted the excellent copy quality and paper size flexibility of the Litton machine.

136. Another development in the early 1970's was the maturation of fully automated offset systems. Again it is noted, however, that no quantitative analysis of offset's impact upon Xerox products was tendered into evidence.

137. The most significant automated offset devices were produced by A-M and A.B. Dick. A-M introduced the Total Copy System, followed by the Continuous Total Copy System. A.B. Dick introduced the 1500, followed by the 1600. The automated offset systems produced by both companies were advertised as directly competitive with Xerox equipment.

138. A-M salesmen were advised that the Continuous Total Copy System was aimed at two different markets. Salesmen were told that, in locations with high monthly volumes but relatively short run-length, the stronger competition was the Xerox 2400, 3600 and 7000, which they should attempt to replace directly. In locations with longer run-lengths, salesmen were advised that the leading competitors were offset, spirit and mimeograph, but that their chances of success were increased by suggesting consolidation of work and replacement of one or more Xerox devices along with an offset, spirit or mimeograph duplicator. Salesmen were also encouraged to offer rental plans in contrast to their usual sales approach.

139. The offset systems were also made more attractive for office use by various cosmetic changes to make them aesthetically more acceptable in office environments. Manufacturers of offset were trying to develop equipment which was more and more convenient for short-run and office use, and companies such as Xerox trying to develop higher speed xerographic plain paper copier/duplicators to compete for long-run CRD work.

140. Advertisers of these automated offset systems made clear their designs on the business held by xerographic plain paper copier/duplicators. For example, a July 1974 advertisement for the A.B. Dick 1500 automated offset system urged the reader to "use it like a copier to get multiple copy jobs done on bond paper at printing press speeds and prices." The advertisement also stated that "at 8 or more copies per original, the 1500 costs less per copy than a copier." The ad summed up the

advantages of the 1500 system as follows: "The 1500—for speed, letter-perfect offset quality and low cost-per-copy."

141. An ad for the A-M Total Copy System from 1973-1974 asserted that "We introduced plain paper copies to the office in the first place" and then went on to stress the automation and low price of the Total Copy System:

> Operation is a matter of 'set it, forget it.' Your operator stacks up 100 originals, sets the counter for quantities, and the A-M Total Copy System does the rest.
>
> Typically, you are spending 3 to 5 cents per copy now. Multiply that by hundreds of thousands—maybe millions—of copies you probably make per year. Then consider that you could lower that per-copy cost to as little as ½ cent.

Another A-M ad was headed: "When it hits you that all those copies you see every day are a nickel each, give us a call."

142. Xerox losses of business to these automated offset systems in this period were not as great as offset manufacturers had predicted or hoped for; however, they were not insubstantial.

143. Because of losses to the A-M Continuous Total Copy System, Xerox developed a special tracking system for cancellations or threatened cancellations by that device.

144. Xerox produced training materials to assist salesmen in selling against the A-M Continuous Total Copy System.

145. There was interchangeability. Although Xerox lost some business to these competitive processes, it also displaced them. For example, in 1972-1973, Xerox replaced approximately 60 Dennison coated paper copiers at United States Steel with Xerox 1000's, 2400's, 3600's, and 7000's. Xerox also replaced several A-M Total Copy Systems with 3600's and 7000's at United States Steel. Finally, United States Steel replaced several SCM 211's and 3M 209's, both coated paper copiers, with Xerox copier/duplicators.

146. In the early-to-mid-1970's, additional xerographic plain paper competitors entered the market. Litton introduced its Royal Bond Copier in 1972, and in the following two years

machines were introduced by Savin, Saxon, Sharp, Toshiba, Canon, Minolta and 3M. Many of these machines were manufactured in Japan. By 1974, there were 14 companies other than Xerox marketing xerographic plain paper copiers in the United States.

147. A leading example of this new competition is the Savin 760, which was demonstrated to the court. The 760, manufactured by Ricoh of Japan, is a xerographic plain paper copier producing 20 copies per minute. It has a fast first-copy-out time, can copy oversized documents, and has two paper trays for feeding different sizes of paper. Along with other Japanese xerographic plain paper copiers, it has done exceptionally well in the marketplace. However, the Japanese copiers were mainly successful in the low volume portion of the marketplace.

148. In response to competition, Xerox introduced its 3100 in 1974. The 3100 operated at a speed of 20 copies per minute and produced excellent copy quality using magnetic brush development. It was a reliable machine.

149. The Van Dyk 4000 also entered the market during this same period. Van Dyk intended and expected its copier/duplicators to compete at least with offset devices, if not coated paper copiers. Dr. Pollack has sworn in another proceeding that the Van Dyk 4000 could do both copying (one or two copies from an original) and duplicating (50 or 100 copies from an original). Similarly, Mr. Sherman of Van Dyk advised a group of Apeco representatives that the first 40 Van Dyk 4000's in the field were being used "in applications running the gamut from one-at-a-time convenience copiers, well into the offset press marketplace where some customers are consistently running well over 150K (150,000) copies/month on one machine."

150. Dr. Pollack and Mr. Sherman separately stated that the Van Dyk 4000 was ideal "for any application requiring 15-20,000 copies/month up to well over 300,000 copies/month," and Van Dyk placed advertisements making precisely that claim. Offset devices regularly operate in that volume.

151. In addition to recognizing the broad range of processes with which the 4000 would compete, Van Dyk specifically intended that the primary focus of its efforts with the 4000 would be "beyond the range of use of the usual convenience copier and starting up into the range of the offset printing area." Dr. Pollack, familiar with the copier/duplicator market, believed that the offset market was a "logical target" for the Van Dyk 4000, and intended to compete with offset devices and to achieve offset speed with the 4000.

152. Dr. Pollack's efforts to compete with offset focused on the A-M Total Copy System, a leading automated offset system described above. In August 1973, Dr. Pollack wrote to the Vice-president of Apeco concerning competition between the Van Dyk 4000 and the Total Copy System. He noted that Van Dyk's machine was less expensive than the Total Copy System for volumes up to, and in some cases over, 200,000 copies per month, and that the Van Dyk machine would be "more than competitive" with the Total Copy System once a sorter was available. Dr. Pollack closed his letter by agressively stating, "Who says we can't compete with offset?"

153. In the fall of 1974, consistent with his belief that the Van Dyk 4000 was competitive with not only coated paper copiers, but also offset, Dr. Pollack asked Kemp of Van Dyk's marketing staff to make a detailed price comparison between the Van Dyk 4000 and various offset systems, particularly the Total Copy System. Kemp performed such an analysis, concluding that the Van Dyk 4000 was highly cost competitive with the Total Copy System at many run-lengths and copy volumes.

154. Van Dyk's sales program confirms that it viewed the offset field as within the market in which it competed. In February 1974, Mrs. Mary Gauntt, Van Dyk's Vice-president of Public Relations, advised all sales personnel about the kind of potential customers they should be looking for: "If a customer does not have a Xerox 3600, 7000 or offset printer in house, do not bother with him for the present."

155. In advertising the 4000, Van Dyk also reflected its understanding it was competitive with offset.

156. Van Dyk's perception of the market in which it was competing is also confirmed by Mr. Sherman's statements concerning the size of that market. Mr. Sherman, in discussing the market in which the Van Dyk 4000 would compete, presented statistics concerning the total copying and duplicating market, including plain paper, coated paper, and offset. His figures reflect that the total market included 345 billion copies in 1973 and 390 billion in 1975. Sherman stated that the Van Dyk 4000 "is aimed at a market that is so vast, it's hard to set limits to it that don't blow your mind."

In presenting that data concerning both the copy and duplicating markets, Sherman stated with regard to them: "Within the broad field of copying/duplicating there are many very important market areas. . . . If we do not orient and organize our marketing efforts to attack that segment which we are designed to service, our marketing will prove fruitless." Sherman went on to state that "your only real competition is a Xerox 3600, 2400, and 7000."

157. Van Dyk 4000's replaced offset machines, as well as competing with those machines for copy volume. Van Dyk 4000's were cancelled in three instances and replaced by offset devices.

158. The Van Dyk 4000 also competed with coated paper copiers.

159. Xerox also perceived that the Van Dyk 4000 competed with offset equipment and coated paper copiers.

160. Van Dyk also believed that the Van Dyk 8000 would compete with offset. Thus Dr. Pollack stated that the 8000 was intended "to take dead aim on the offset printing market, which is much bigger than the entire office copying business," and reiterated that claim on several occasions.

161. The ease with which Xerox customers, including MUP customers, could replace Xerox equipment with coated paper and offset and still save money is illustrated by the activities of United States Steel in 1973-1974. In the spring of 1973, United States Steel set up a photocopy task force to attempt to reduce its copying and duplicating costs. At that time, United States Steel was a MUP C customer, and had over 600 Xerox

copier/duplicators. The task force visited several vendors of copying and duplicating equipment, including 3M, IBM, A-M, Saxon, SCM and Xerox. The task force described United States Steel's copying needs to each vendor and asked for its best price. Since United States Steel was a MUP C customer, it was already getting Xerox' best price; it had requested a better price, but that request was rejected.

162. After studying the situation, the task force recommended that United States Steel cancel all Xerox machines and replace them with a variety of competitive devices employing offset, coated paper and xerographic plain paper technologies. The task force stated that this shift from Xerox would save the company $1.3 million annually. The recommendations of the task force were that locations with copy volumes under six thousand copies per month should use the 3M 209, a coated paper copier. Locations with volumes from seven to ten thousand copies per month were to use the A-M 550, a coated paper copier. Locations making 11,000 to 29,000 copies per month were to use the 3M VHS, a xerographic plain paper copier. Locations making 50,000 or more copies per month with an average run-length of four or less were to use the IBM Copier II, a xerographic plain paper copier, while such locations with average run-lengths of five or more were to use the A-M Total Copy System. The task force also recommended that Total Copy Systems be purchased rather than leased.

163. The photocopy task force at United States Steel analyzed the cost per copy for each of the recommended devices. For all volumes except 1,000 copies per month, the cost was 2.3 cents per copy or less. Xerox analyzed the cost of Xerox equipment in each volume band and found that it was higher than the designated competition in every instance.

164. United States Steel advised Xerox in May 1974 that it intended to replace all Xerox equipment at United States Steel nationwide and cancel its MUP contract. At that time, United States Steel had approximately 630 Xerox machines, representing an annual revenue to Xerox of approximately $3.6 million.

165. United States Steel began to cancel Xerox machines in July 1974. Cancellations accelerated in each month of 1974,

and a total of 450 machines had been cancelled by January 1, 1975, representing an annual revenue loss to Xerox of approximately $2,000,000, if the cancelled machines remained cancelled for an entire year.

166. The Xerox equipment cancelled at United States Steel was replaced by the devices recommended by the photocopy task force. 3M 209 coated paper copiers replaced Xerox 813's, 660's, and 914's. A-M 550 coated paper copiers replaced Xerox 660's, 914's and 1000's. 3M VQC II coated paper copiers replaced Xerox 1000's, 4000's, 3100's, 2400's and 3600's. 3M VHS xerographic plain paper copiers replaced Xerox 2400's, 3600's and 7000's. Where reduction was needed, 3M VHS-R's replaced Xerox 7000's. IBM Copier II's replaced Xerox 2400's, 3600's and 7000's. A-M Total Copy Systems also replaced Xerox 2400's, 3600's and 7000's. It would appear, although the evidence is conflicting, that Xerox may have regained much of the lost business at United States Steel. If this is so, the interchangeability between Xerox equipment and the other items is underscored.

167. Xerox continued to improve its product. In 1974 it introduced its 9200 duplicating system. The 9200 operates at 7,200 copies per hour, and is rich in features, including fully automatic document handling, limitless sorting, reduction, duplexing, and a feature called "job recovery." Job recovery permits the 9200, after a malfunction, to determine where it was when the malfunction occurred and to complete the job without mishap once the malfunction is cured. The automatic document handler permits the user simply to insert a stack of 50 originals into the document handler, set the machine, and press a button, with the machine moving the 50 originals across the platen, making the copies and sorting them on its own. The machine also has vastly improved copy quality and greatly increased reliability.

168. Xerox' objective in bringing out the 9200, which required seven years and $300 million to develop, was "to compete directly across the board with offset [and] to take business away from it," as well as to strengthen Xerox' offerings in the high volume copying area. The 9200 has in fact made

Xerox highly competitive with offset for run-lengths up to approximately 1,000.

169. As Mr. Jorgensen, the court's witness, and also offered as an expert by Van Dyk, testified, the 9200 entered a segment of the plain paper copier market occupied by offset.

170. Initially there were two different pricing mechanisms for the 9200, depending upon whether the run-length exceeded or fell short of 20 copies from an original. For runs of 1-19, the customer was charged 4.25 cents for the first five copies and 1.25 cents for copies 6-19. That "copying mode" pricing was roughly comparable to the pricing on Xerox' fastest existing copier/duplicators, the 3600 and 7000. When 20 or more copies were being made from the same original, the customer was charged 16 cents for the first copy, .5 cents for each additional copy up to 100,000 per month, and .4 cents thereafter. Like the DP pricing described above, this duplicating mode pricing was intended to replicate offset pricing—the 16-cent first copy charge being comparable to the cost of a master, and the .5 or .4 cent charge being comparable to incremental costs on offset. Thus, the machine was priced to be competitive both for copying and duplicating.

171. Subsequent to the introduction of the 9200, Xerox' pricing for the machine was modified to provide for duplicating mode pricing on runs of six or more, rather than 20 or more. This modification was designed to make the 9200 even more price competitive with offset on runs between six and 19. However, it would appear that the rental price exacted for the convenience of xerographic plain paper copying was not competitive with the cost of offset devices, the great majority of which were purchased rather than rented.

172. The 9200 enhanced Xerox' ability to compete with offset in the high volume range, due to its speed, copy quality, features and reliability. The 9200 has also been successful in obtaining short to medium run-length work. In its first year, ⅓ of the jobs run on the 9200 were at run-lengths of six or less. Approximately ½ of the placements of the 9200 replaced Xerox 3600's and 7000's.

173. The usage of a Xerox 9200 at Texaco confirms Xerox' success in drawing both long and short runs to the 9200. In 1976, Texaco replaced an A.B. Dick 369 automated offset press, an A-M Total Copy System and an IBM Copier II with a single 9200. Runs as short as two involving large numbers of originals had previously been done on the Copier II, but are now done on the 9200 to take advantage of its automatic document handler; runs from ten to 1,000 from the same original were transferred from offset systems to the 9200. In 1977, Texaco guidelines were modified so that all runs of five or more went to the CRD and were done on the 9200. Thus, jobs with run-lengths between five and ten shifted from decentralized copiers (predominantly employing coated paper) to the 9200. The 9200 also took substantial copy volume from offset systems at Kemper Insurance.

174. To advance the ability of the 9200 to compete with offset, Xerox developed a separate sales force devoted to placing the 9200. Xerox also ran advertising for the 9200, calling it "The Print Shop of the Future," and stating that "no reproduction center will be complete without one." The advertisement described above appeared in *In-Plant Printer,* a magazine read by CRD managers, who are heavy users of offset machines.

175. Manufacturers of automated offset systems perceived the 9200 as a competitive threat. They ran ads directed against the 9200 in the same publications. For example, A-M ran an ad in *In-Plant Printer* comparing the 9200 with the A-M 4250 MR, one of its latest automated offset devices. The advertisement compared features and pricing of the two machines side-by-side on a chart, and concluded that "In the long run, A-M beats Xerox by $21,000 a year." Significantly, the comparison of features shows that A-M considered the 9200 to be comparable to its 4250, and found one basis for distinction to be price. Other distinctions which A-M enumerated included: the ability of the 4250 to produce good copy quality from poor quality, or colored originals, the ability of the 4250's document feeder to handle a greater number of originals, the ability of the 4250's document feeder to handle various sizes of originals and the greater speed and more conservative appearance of the 4250

The substantial $21,000 a year savings which could be realized through the use of A-M offset equipment, was predicated upon a volume of 325,000 copies per month. The advertisement explicitly appealed to organizations making as few as 50,000 copies per month. A 1976 A.B. Dick 1600 ad claimed that run-lengths over five were less expensive on offset than on a copier.

176. Offset manufacturers also improved their products in order to combat competition from xerographic plain paper copier/duplicators. Mr. Kemp of Van Dyk reported to Dr. Pollack in October 1974 that, while substantiation was required, a source had reported A-M had developed a new plate (master) which cost only 4.5 cents and could produce up to 20,000 copies. Mr. Kemp concluded that A-M was "attempting to capture a portion of the master making business that is controlled by organizations such as Itek," that "A-M is making early strategic moves to counter any cost competition that could possibly be generated by masterless high speed copier duplicators," and that "[t]his new product by A-M could be one in a series of innovations to prevent any intrusion into its offset stronghold by copier/duplicator or any other competition."

177. In 1975, A-M introduced its 4875, with automatic duplexing, and immediately began advertising it against the 9200. In 1977, Xerox came out with the 9400, which also has automatic duplexing.

178. This competition, such as it is, continues today. In early 1978, Gestetner advertised that its offset system was "[e]specially for concerned copier/duplicator users with X-rated monthly charges" and was "the convenience copying/duplicating system of the future . . . today." However, Xerox has stated that "the inherent characteristics and costs of the processes segment the market."

179. Xerox also prepared training materials to assist its salesmen in placing the 9200 to displace automated offset systems. One such aid, a video tape entitled "Time, the Productivity Measure," which was played for the court, compares the actual time required to run various jobs on the Xerox 9200 and the A-M 4250 by use of a "split-screen." The film shows Xerox' reliance on the 9200's greater effective speed,

because of features such as automatic document handling and limitless sorting, to overcome the faster rated speed of the A-M system. Similar videotapes have been prepared to help salesmen place the 2400, 3600 and 7000 against offset.

180. In 1975, Kodak entered the market with a high-speed xerographic plain paper copier/duplicator, the EK-100, and a year later introduced the EK-150, which was demonstrated to the court. The Kodak line of machines provides significant competition. They offer high copy quality, excellent reliability, speed of 70 copies per minute, automatic document feeding, reduction, duplexing and automatic stapling. Kodak advertising relies heavily on unique features which Xerox does not have, like stapling.

181. Dr. Pollack viewed the competition in the marketplace in 1975 as very intense and considered the announcement of the Kodak machines (and the IBM Copier III, discussed below) as "a potentially serious situation."

182. The vigorous competition for Xerox in the mid-1970's came from Kodak, Japanese and other xerographic plain paper copiers, and various coated paper copiers and automated offset at the high end. The Xerox 3600, and to a lesser extent the 7000, felt this competition.

183. In 1976, in response to increased competition, Xerox introduced its "tandem" plan. That plan provided that two 3600's or two 7000's could be connected to a single meter. While the customer paid for every copy, the use of a single meter provided him in effect with a volume discount, since the volume on both machines could be combined. The customer also paid a minimum which was above that which he would have paid for one machine, but below that for the two machines had they been priced separately.

184. In 1976, IBM introduced the Copier III, which was also demonstrated to the court. The Copier III produces 75 copies per minute, and has semi-automatic document handling, sorting, reduction, and automatic duplexing. However, by the time of trial IBM was no longer making new placements of the Copier III and had curtailed production because of reliability problems. Overall, by 1977, at least 38 models of xerographic

plain paper copiers had been marketed in the United States by companies other than Xerox and Van Dyk. The large majority were manufactured and marketed by Japanese firms.

The only other American manufacturers of plain paper copiers were IBM and Eastman Kodak. 3M's plain paper copier, the VHS, was taken out of production.

185. Coated paper copiers in the mid-1970's had impact upon Xerox in the low volume range. Thus, in 1975 the California Department of Transportation's San Francisco office replaced approximately 60 Xerox machines with 40 Minolta, 13 3M and some Savin coated paper copiers, most of which went into low volume locations (0 - 3000 copies per month). That office still has over 50 coated paper copiers in use, and other Departmental District offices also use coated paper copiers today. Ampex also replaced Xerox copiers with coated paper copiers in the low volume range. Both customers used high speed Van Dyk plain paper copiers in their high volume locations. Advertisements placed by 3M in 1973, 1974 and 1978 highlight the same factors which coated paper competitors were relying upon 10 to 15 years earlier—convenience, simplicity and decentralization.

186. Coated paper copiers have also continued to improve in recent years. For example, in 1976 Minolta introduced its 201, which was demonstrated to the court. The 201 produces extremely high quality, bond-like coated paper. It can also produce copies of various sizes. Most important, it has reduction capability, making it competitive with the Xerox 7000, Kodak and IBM machines in that respect. Thus in the low volume range, the quality of paper produced and its features permit it to compete very successfully with xerographic plain paper copiers.

187. Aside from the testimony and documentary evidence stemming from the parties to this litigation, the court has also heard testimony from certain customer witnesses. The three customer witnesses, Reichert, Bourlier and Richlaw, called by Xerox, whose testimony I credit, confirm the evidence summarized above concerning the competition that had developed in

the mid-1970's between offset devices, xerographic plain paper copiers and coated paper copiers.

188. Van Dyk also presented testimony from two customers which confirms the competition between various processes for copying and duplicating, the California Department of Transportation, and Ampex Corporation.

189. The evidence establishes that the market is a continuum, and that there is significant competition between devices employing different processes and operating at different speeds. Despite the fact that industry personnel, including Xerox employees, often segment the market for purposes of analysis and discussion, such segmentation is not reflective of true market conditions and does not indicate that machines in different segments do not compete with one another.

190. Van Dyk has alleged that Xerox possessed monopoly power in a relevant market defined to include both plain and coated paper copiers, at all times from 1960 to date. This contention fails to recognize that the nature of the market, and Xerox' position in that market, changed in the period from 1960 to 1973, and the change has become more marked since 1973. I find that, whatever the situation may have been from 1960 through 1969, with respect to the nature of the relevant market and Xerox' place in it, in 1970 IBM introduced its Copier I, and its Copier II in 1972. Eastman Kodak introduced its Ektaprint in 1975. Starting in the early 1970's, Japanese companies came on the market with plain paper copiers. Finally, Van Dyk itself, like the other companies, undaunted by Xerox' position, itself came on the market with its 4000 in 1973. Moreover, starting in the early 1970's offset and the higher speed plain paper copiers began to be competitive at the upper end of the speed range. Finally, coated paper copiers continued to maked certain improvements so as to compete with plain paper copiers at the lower end of the speed range. For these reasons, I conclude that by no later than the latter part of 1973 the relevant market consisted of coated paper and plain paper copiers, and offset, and that Xerox, while a dominant force, did not possess monopoly power in that market, in that it lacked the power to control prices or exclude others from the market. In this

respect, it is noted that Mr. Jorgensen of Dataquest, in testimony which I accept, estimated Xerox' share of the relevant market in 1973 was 35% (a market including plain and coated copiers and offset).

191. In the 1970's Xerox did not have the power to exclude competition. Dealing just with the plain paper copier portion of the relevant market, IBM, Eastman Kodak, Van Dyk and Japanese companies had entered that portion of the market by 1974-75. Additionally, competition intensified from the coated paper copiers and offset, in the form of new companies entering the market and old companies marketing new equipment.

192. Moreover, Van Dyk, by its own testimony, was able to compete effectively with Xerox and displace much of its equipment, to raise substantial sums of money, and to interest Apeco and SCM in becoming involved with Van Dyk in certain business associations heretofore discussed.

193. Xerox as of late 1973 was not able to control prices in the relevant market, either as to plain paper or coated paper copiers, or offset. Indeed, given the size of certain of its competition, IBM and Eastman Kodak, for example, and the products of each, it would have been foolhardy for Xerox to think it could control prices.

194. Van Dyk has failed to prove its allegation that Xerox has obtained by application or acquisition a huge portfolio of patents with the intent or purpose to discourage and hinder the entrance of new competitors into the market. I find that almost all Xerox patents are the direct outgrowth of Xerox' outstanding research and development which had as its purpose the improvement of its products and development of new ones. Xerox did not stockpile patents to intimidate others. Xerox did not secure patents fraudulently or on trivial inventions, nor did it institute patent infringement litigation in bad faith to inhibit legitimate competition. It did not selectively enforce its patents in order to frustrate competition.

195. During the early 1950's Xerox focused on attempting to develop a marketable automatic office copier.

196. The early flat plate equipment required significant advances beyond the disclosures of the basic Carlson patents. Yet it was very slow, manual, and required a skilled and trained operator to obtain the best results. The flat plate equipment also gave poor development of solid areas and inadequate reproduction of blue colors, such as ballpoint pen signatures.

197. Development of an automated machine, the Copyflo, required continued research.

198. The Copyflo's paper flow was in continuous roll form, and the machine could not be quickly stopped and started. It had to be checked and adjusted regularly by a skilled operator.

199. After the Copyflo came the 914. The technical problems in developing it were substantial.

200. The 914 was crude by today's standards, demonstrating that Xerox' costly research and development was efficient and productive as it resulted in numerous refinements, improvements and more efficient equipment year after year.

201. The design goals for the various Xerox commercial products subsequent to the 914 have resulted in the use of a number of different methods for carrying out the xerographic process steps. The next Xerox copier was the 813, introduced in 1963. The 813 weighed approximately one-third as much as the 914 and was two or two-and-one-half times as dense as the 914. In developing the 813, major technical obstacles were overcome.

202. The design of the Xerox 2400, introduced in 1965, also presented significant problems which were successfully resolved.

203. The Xerox 3600-I, introduced in 1969, had essentially the same construction as the 2400, but operated at a speed of 60 copies per minute. In order to operate at that speed, the 3600-I used a new steel shot developer in place of the carrier material previously used. The Xerox 3600-III, designed for particularly high-quality copying from special originals, incorporated a new fusing system to help clear up unwanted background. Finally, although most of the basic xerographic construction of the Xerox 7000 was similar to that of the 3600-I, the machine

incorporated a new optical system in order to be capable of making either full-size copies or various reduced sizes of copies. The 7000 also incorporated a new photoreceptor alloy.

204. The Xerox 4000, which was introduced in 1971, operated at 45 copies per minute and included automatic duplexing as well as a means of reusing excess toner collected in the cleaning system. It was also much smaller in size than the 2400, 3600, and 7000 machines. The structure of the Xerox 4000 was not only dissimilar to previous machines, but upside down relative to previous machines. The paper path ran across the top of the drum rather than the bottom; exposure was on the bottom rather than the top; development was by an uphill cascade system against the rotational direction of the drum; and the CHOW fuser was upside down relative to the fuser in the 2400/3600 family of machines. The Xerox 4000 introduced a new wiper blade cleaning system, employed solid state electronics, and added an automatic density control to monitor toner level in the machine.

205. The Xerox 3100, introduced in 1973, was a small machine. Technical problems were created by the use of a drum only three inches in diameter, "clamshell" construction to provide easy operator access to the entire paper path, and reduction of power consumption so that the machine could be plugged into a standard wall socket. The 3100 used a new "half speed mirror" optical system, a new parabolic radiant fuser, a new lower melting point toner, and a new "doctor blade" cleaning system.

206. The 3103 or 3100 LDC is a version of the 3100 designed for making copies of large documents by use of an optical system which is capable of adjustment from a moving optics/stationary original system to a stationary optics/moving original system. The 3107 is also a version of the 3100, but with another optical system to permit making reduced-size copies of large originals.

207. In 1973, Xerox also introduced the 6500, which makes copies in color. For this machine the photoreceptor alloy in the 6500 had to be developed to be adequately responsive to all colors of light. An optical system was also developed with three

light filters to separate the colors of yellow, cyan and magenta. The development system in turn employed three separate developer housings, which alternately fall into place to apply toner corresponding in color to the particular light filter in place at that time. Since the paper on which the copy is being made must go through three complete development cycles, the 6500 contains a second drum on which the paper is held as it goes through the three cycles. A radiant fuser was also developed for the machine in order to assure the proper blending of the three different toners.

The 6500 is a special purpose low speed low volume plain paper copier which does not compete with the Van Dyk 4000 or any other high speed plain paper copier.

208. In 1974 Xerox began marketing the Xerox 4500. Although the xerographic construction of the 4500 is essentially the same as the Xerox 4000, the 4500 incorporated a document assist device on the platen and an integral sorter to expedite both document input handling and copy output handling.

209. The Xerox 9200, introduced in 1974, produced copies at a rate of 120 copies per minute. It had improved copy quality and incorporated a reduction capability, an automatic document feeder, unlimited sorting, and an automatic job recovery feature to compensate for pages lost due to a paper jam. There had to be developed a belt photoreceptor for the 9200 in place of a drum, and a flash exposure system in which both the original document and all parts of the optical system would be stationary. The 9200 used a new five-roll magnetic brush development system and a new bias roll transfer system. As a substitute for the puffer, the 9200 used a detack coratron to reduce the electrostatic forces holding the paper to the photoreceptor belt and then relied on a sharp bend in the belt to strip the paper from the belt.

210. In 1977, Xerox introduced three new copier duplicators. The 9400 was similar to the 9200, but with automatic duplexing capability, an improved automatic document handler, and electronic diagnostics to assist a service representative in identifying any problem areas in the machine. The 5400 was similar to the 4500, but with a semi-automatic document

handler, magnetic brush development and sophisticated electronic diagnostics. The 3400 was similar to the 3100, but with an integral sorter, a semi-automatic document handler, and electronic diagnostics.

211. Patentable inventions have resulted not only from research and development with respect to xerographic plain paper copier/duplicators, but also from research and development work in connection with specialized copiers and a variety of non-copier commercial products, including all of the imaging systems and visual communications.

212. The first commercial Xerox machine using xerography to reproduce copies from microfilm, the Copyflo 11, was marketed six years before the first Xerox automatic copier/duplicator. Subsequent Xerox xerographic machines which use microfilm as input include the Microprinter, the 740 reader/printer, and the 1824-UI, which could print from microfilm, microfiche, or aperture cards. Other Xerox machines which used aperture cards as input included the Copyflo 24, the 1824, and the 600 MEP, which could also use microfiche as input.

213. The 1860 and the 840 EPS are Xerox copiers designed for making copies of large engineering drawings rather than letter-size documents. The Xerox 730 is a xerographic addressing system for putting addresses directly on mailing labels. The 7000 CFF is a modified Xerox 7000 designed for automatic feeding, copying and reducing of computer fanfold printouts.

214. Since some xerographic photoreceptors, including selenium, are subject to discharge by exposure to X-rays as well as light, Xerox has explored the possibilities of xerographic X-ray technology. The Xerox 125 is a commercial xeroradiography system used particularly for mammography in the detection of breast cancer.

215. A xerographic device can also use radio, microwave, telephone, or other electrical signals as a source of input. The Xerox LDX uses telephone or microwave input to a xerographic system for long distance transmission of document images.

Reproduction of documents by transmission over telephone lines also can be carried out with the Xerox TC 200, a xerographic telecopier. The Xerox Mobile Printer is a small portable unit which receives input by radio and may be used by police, for example, in order to receive information transmitted to a police car from a headquarters or other radio base. The Xerox 1200 and 9700 are xerographic printers for providing direct output from computers or computer tapes.

216. I accept as credible the testimony of Messrs. Gundlach and Becker who testified that Xerox' patents have come into existence through the need to solve technical problems inherent in the improvement of its products and the development of new products as hereinabove described.

217. Xerox obtained patents upon its patentable inventions to assure protection against copying by other companies.

218. Xerox also obtained patents on its inventions to avoid being blocked by the patents of others from using new product innovations.

219. The accumulation in the early 1950's of a backlog of inventions on which no patent applications had been filed led to criticism of the Haloid Patent Department from Mr. Carlson. This led to establishment of a "Patent Commission," consisting of Carlson and representatives of Battelle and Haloid, to study the problem of patent filings lagging behind the invention output of the research and development effort.

220. The Patent Commission issued a report. Noting that there then existed a backlog of approximately 150 inventions on which no patent applications had been filed, the report recommended that the staff of patent attorneys be increased and that Battelle and Haloid coordinate the effective use of their patent attorneys. Despite the recommendations, there continued for years to be a constant backlog of accumulated inventions for which no patent applications had been filed.

221. Thus, plaintiff has failed to sustain its burden of proving by a preponderance of the evidence that Xerox pursued

xerographic research and development or filed patent applications for the purpose of excluding competitors from the market.

222. Under the circumstances of this case, and in light of the testimony of Mr. Gundlach on the issue, which testimony I accept, it is without significance that a large number of Xerox patents were not exploited commercially.

223. Plaintiff has failed to sustain its burden of proving by a preponderance of the evidence that Xerox acquired, or attempted to acquire, xerographic technology from other companies for the purpose of preventing competition.

224. The 1956 agreement whereby Haloid acquired title from Battelle to its xerographic patents was of no competitive significance. Haloid already held an exclusive license to those patents under previous agreements. This agreement alleviated the cash flow drain created by the royalty provision in the 1951 Haloid-Battelle agreement by substituting an issue of Haloid stock to Battelle in return for formal title to the patents. As the value of the stock increased, Battelle was benefited. Also, some patents purchased by Haloid in 1956 were Haloid inventions, since the 1951 agreement had required patent rights to all Haloid inventions be assigned to Battelle.

225. Although the Haloid-Xerox research contracts with Battelle provided that Battelle could not engage in similar research for other sponsors, such provisions are routine in Batelle research contracts with any sponsor and are also routine for other independent research organizations like Battelle. Moreover, Xerox routinely spent much more on research at Battelle than the minimum $25,000 per year required by the agreements in order for Haloid-Xerox to maintain its right to assignment of all Battelle inventions relating to xerography.

226. As to the technology developed by Horizons as of 1956, it is unclear how significant that was. Dr. Clark's appraisal was that the most interesting work being done at Horizons related to the possibility of putting a hard overcoating on a photoreceptor drum to protect the selenium from damage, a process that was never successfully commercialized. Carlson

visited Horizons in January 1956 and reported back to Mr. Wilson, "Briefly stated, I learned nothing at Horizons which would appear to help to advance Haloid's own technical or commercial developments in xerography." Carlson also stated, however: "On the other hand, the Horizon people have shown considerable ingenuity and initiative in striking out at a different angle from the conventional. This ability may be productive in the future." The Haloid research arrangement with Horizons was undertaken at the request of General Dynamics/Stromberg Carlson in order to facilitate a working relationship between Haloid and Stromberg Carlson. Indeed, all of the contemporaneous documents refer to the Stromberg Carson/General Dynamics and Horizons contracts as a single matter.

On balance, it would appear that the Horizons arrangement, furthered in 1960 when Xerox purchased Horizons' xerographic patents and secured Horizons' agreement that as long as Xerox sponsored research at Horizons, Horizons would not undertake research in xerography for any other firm and would assign all inventions and discoveries to Xerox, did not result in any injury to Van Dyk.

227. There is no evidence that Xerox, in setting up foreign joint ventures to manufacture and market xerographic products, either was seeking a partner with available technology that might be useful in the field of xerography or has received from those joint ventures any significant technology. All the evidence is to the effect, and I so find, that Xerox was to supply the technology to these ventures and that The Rank Organisation, in the case of Rank Xerox, and the Fuji Photo Film Company, in the case of Fuji Xerox, were to supply necessary capital resources and foreign marketing expertise.

In any event, said agreements resulted in no injury to Van Dyk nor does it here contend so; as I have found, as of late 1973 Xerox did not possess monopoly power in a relevant market.

228. Although the electrofax licenses granted by Xerox to a number of firms contained standard form nonexclusive license

grantback clauses, Xerox did not obtain access to any significant inventions by means of such grantback clauses. Of the patent license rights obtained by Xerox from unrelated companies through the grantback clauses, none was ever used in any product manufactured by Xerox.

229. Van Dyk contends that Xerox improperly used patent infringement litigation as a tool for suppressing competition. Specifically, Van Dyk alleges that Xerox has brought infringement suits in bad faith. The plaintiff has failed to sustain this charge by a preponderance of the evidence. As I have found, Xerox brought its patent litigation in good faith.

230. Following the filing of the complaint in this case against Xerox and the initiation of the Chapter XI proceedings by Van Dyk, Xerox filed an application with the Bankruptcy Court seeking permission to institute a patent infringement action against Van Dyk. In its papers, Xerox alleged that the Van Dyk 4000 infringed nine Xerox patents.

231. Xerox' witnesses described each of these nine Xerox patents in detail at the trial and testified as to the use of the inventions described in each patent in Xerox' machines and in the Van Dyk 4000.

Van Dyk relies upon studies by Dr. Pollack and Apeco that Van Dyk did not infringe. I do not have to resolve the infringement question. The fact is suit was never brought and there is, based on my own viewing of the subject matter involved, including the nine patents and the Van Dyk equipment, sufficient to warrant a reasonable person to say that an infringement suit would not have been frivolous.

232. Van Dyk has failed to prove by a preponderance of the evidence that Xerox' failure to sue Japanese manufacturers of plain paper copiers was because of fear of reprisals against Fuji Xerox by the Japanese government.

233. Van Dyk contends that Xerox has maintained a dominant position in the United States copier/duplicator industry by entering into joint venture agreements with foreign companies and, pursuant to such agreements, dividing world

markets in xerographic plain paper copier/duplicators. Van Dyk further alleges that, as a result of these joint ventures, Xerox has eliminated potential competitors in the copier/duplicator field and has enhanced its own market position by acquiring significant patent rights and xerographic technology from the joint ventures. The evidence fails to support any of these allegations. Rather, the evidence shows that, at the time of the formation of the joint ventures with The Rank Organisation and Fuji Photo Film Co., neither Rank nor Fuji was an actual or potential competitor of Xerox in the copier/duplicator business, and that the joint venture arrangements were not agreements between actual or potential competitors to allocate markets. The evidence further shows that, in view of the surrounding circumstances, the joint venture agreements and the corresponding patent licenses were reasonable and ancillary to the formation of speculative business ventures. Moreover, the evidence shows that Xerox did not seek out foreign partners with a view to obtaining additional xerographic technology, that it was contemplated that the flow of technology would be from Xerox to Rank Xerox and Fuji Xerox, that such has been the case, and that the joint ventures have not resulted in any significant enhancement of Xerox' patent coverage and technological capability in xerography.

234. Rank Xerox was established in 1956 as a joint venture of the Haloid Company and The Rank Organisation of London, England. The joint venture was created in order to develop xerography in markets outside the United States and Canada. Rank Xerox was incorporated under the laws of the United Kingdom.

235. Haloid first began to consider developing an international business in xerography in the early 1950's. Haloid obtained worldwide rights in xerography from Battelle in 1951. In 1955 Mr. Linowitz made his first trip to Europe to investigate the potential for a business relationship with a European Company.

236. Haloid had considered developing overseas markets on its own, but determined that this was not possible. It realized that, if anything were to be done, it would have to be in connection with a partner.

237. Having decided to pursue the development of international markets in partnership with another company, Haloid established various criteria for the selection of a foreign partner. It was looking for a company that had funds available to invest in the venture. It also wanted a partner that had experience in foreign manufacturing and marketing and the capability to manufacture the products contemplated by Haloid. Finally, it was looking for a company that had an enthusiam for xerography and that was willing to make a commitment to its development.

238. Haloid was not looking for a partner with technology and know-how in the field of xerography. It already possessed the technology and know-how and was prepared to contribute this to the joint venture. It was looking for a partner that could contribute what it lacked, an international marketing capability.

239. In its search for a partner, Haloid contacted a number of European companies to discuss the possibility of establishing a partnership.

240. Rank, however, showed some interest, and a partnership was eventually arranged. Rank was selected because, of the companies considered, it best met the criteria established by Haloid.

241. Discussions with Rank concerning a joint venture began in 1955. At that time Rank's principal business was motion picture film production and distribution. It was not involved in any way in the manufacture and distribution of copier/duplicators. Its wholly-owned subsidiary, Rank Precision Industries (RPI), was engaged in the business of precision instruments and optics. At the time of the creation of Rank Xerox, Rank was not a potential competitor of Haloid in the field of copying and duplicating.

242. In 1955, the only xerographic products which Haloid had available were the flat plate equipment and the Copyflo machine. It was not intended, however, that these products would be the basis of the partnership. Rather, Haloid was offering Rank the opportunity of participating in the development of future xerographic products, principally an automated general purpose copier/duplicator. It was not until

1960, more than four years after Rank Xerox was created, that Xerox marketed its first office copier, the Xerox 914.

243. The Rank Xerox joint venture was speculative, since Haloid did not have a general purpose copier/duplicator available in 1956.

244. Under the agreement creating Rank Xerox, which was entitled the "Heads of Agreement," Haloid and Rank became equal owners of the joint venture and each side had an equal number of votes on the Board of Directors. Rank Precision Industries was made a party to the Heads of Agreement because it was contemplated that it would manufacture products for Rank Xerox at cost.

245. Rank's contribution to the joint venture was its financial investment and management capability. The Heads of Agreement provided that Rank would contribute up to 600,100 pounds in cash. Haloid's contribution was its accumulated information and know-how in xerography, including its patent rights outside the United States and Canada, as well as rights in any inventions and developments which Haloid might make in the future. To implement the transfer of this technology, Haloid and Rank Xerox entered into a licensing agreement in 1957 under which Haloid granted Rank Xerox an exclusive license under all present and future patents in xerography held by Haloid outside the United States and Canada.

No definite term was established for the exclusive license granted to Rank Xerox. Xerox agreed to notify Rank Xerox of all improvements and know-how relating to xerography and not to communicate such information to anyone else.

246. There was no agreement that Haloid and Rank Xerox would not compete against each other outside the United States and Canada, but it was implicit that each party would have an exclusive territory and would refrain from competing in the other's territory.

247. Under the terms of the Heads of Agreement, Rank Xerox, Rank, and Rank Precision Industries agreed to "grant back" to Haloid on an exclusive basis, upon request by Haloid, a license in the United States and Canada under any invention

or improvement in xerography or information, data and "know-how" relating to xerography that Rank Xerox, Rank or RPI might make.

248. With the technology and know-how developed or acquired by Xerox in the United States, Rank Xerox has been able to manufacture basically the same machines manufactured by Xerox in the United States, pursuant to agreement between the parties. The technology embodied in the equipment manufactured and marketed by Rank Xerox originated with Xerox in the United States and, without Xerox' contribution, Rank Xerox would not have been able to manufacture these products on its own.

249. The only patented invention obtained from Rank Xerox, Rank or RPI which Xerox has used in any of its products is a mechanical miss detector developed by Rank Xerox which was used in the Xerox 914 and 720. A miss detector performs the function of shutting down the machine if a sheet of paper has not been removed from the drum after the transfer stage. Before the Rank Xerox miss detector was incorporated in the 914, this function was performed satisfactorily by a photoelectric miss detector. In addition to the patented invention obtained from Rank Xerox that was used by Xerox, a number of improvements developed by Rank Xerox were incorporated by Xerox in its products; there has been a continual flow of technological information from Rank Xerox, Rank and RPI to Xerox. In the overall scheme of development of Xerox' products, the technology received from Rank Xerox, Rank and RPI was insignificant.

250. In 1969, the original agreements establishing Rank Xerox—the Heads of Agreement and 1957 license agreement—were cancelled and replaced by a distribution agreement between Xerox and Rank Xerox. Under the terms of the distribution agreement, Xerox granted Rank Xerox limited rights to manufacture and distribute xerographic and non-xerographic products in the eastern hemisphere. The distribution rights acquired by Rank Xerox were exclusive for a three-year period and nonexclusive thereafter, but at Xerox'

option, they could be renewed on a yearly basis for a maximum of four additional years.

251. As part of the 1969 restructuring of the relationship with Rank Xerox, Xerox acquired voting control of Rank Xerox by purchasing an additional 1% of the voting stock from Rank. Thus, since 1969, Xerox has had voting and managerial control of Rank Xerox.

252. Fuji Xerox, a jointly-owned company of Rank Xerox and the Fuji Photo Film Co. of Tokyo, Japan, was established in 1962 under the laws of Japan in order that Rank Xerox and Fuji might jointly develop xerography in Japan and the Far East. Rank Xerox and Fuji are equal owners of Fuji Xerox and share voting control.

253. In the late 1950's, Rank Xerox, which owned the rights to xerography in the Far East, began to investigate the possibility of developing markets in that part of the world in conjunction with a Japanese partner. Thomas Law, who was the managing director of Rank Xerox, made several trips to Japan to discuss with various Japanese companies the possibility of a joint company arrangement with Rank Xerox. After Mr. Law had narrowed the prospective partners down to Toshiba, Fuji Photo Film and Ricoh, he and Mr. Linowitz, then a director of Rank Xerox, traveled to Tokyo to meet with these companies.

254. Rank Xerox was interested in establishing a xerographic business in Japan because it was apparent that a potential market for copying/duplicating equipment existed in the Far East. Because of Japanese government restrictions, Rank Xerox' options with respect to the manner in which it would develop markets in Japan were limited. It could either license a Japanese company in xerography or establish a joint venture with a Japanese partner.

255. Rank Xerox decided to form a joint venture with a Japanese company rather than enter into a licensing arrangement for many of the same reasons that Xerox chose to establish a joint venture in Europe.

256. Rank Xerox wanted a partner that had the financial resources to invest in the venture, the type of management capability needed to manage the joint venture, and a commitment to pursue the development of xerography in the Far East. It also wanted a partner with experience in marketing in Japan and the Far East. Another important consideration to Rank Xerox was the type of people that the partner would bring to the venture. Rank Xerox was looking for people with whom it could work closely and who would be similar in motivation and commitment to the Rank Xerox management. Rank Xerox did not require that the Japanese company have xerographic technology.

257. Rank Xerox selected Fuji over Toshiba and Ricoh because Fuji best satisfied the criteria established by Rank Xerox.

258. The basic agreement establishing Fuji Xerox was signed in 1960 and, after government approval, became effective in 1962. Prior to the creation of Fuji Xerox, Fuji was not engaged in the manufacture and marketing of xerographic equipment. In the late 1950's Fuji was doing some development work on a zinc oxide copier but never developed more than a prototype of this machine. However, it was only several years after the joint venture agreement was made that Mr. Linowitz of Xerox learned that there had been some work in Fuji's laboratories on a zinc oxide copier. Fuji was not potentially a substantial competitor of Rank Xerox or Xerox in the field of copying and duplicating.

259. The Fuji Xerox joint venture was speculative.

260. In general terms, Fuji's contribution to the joint venture was its financial investment and management capability; Rank Xerox' contribution was to pass on the xerographic technology and know-how which it received from Xerox and to transfer its patent rights in Japan and the Far East.

261. Under the terms of the agreement establishing Fuji Xerox, Rank Xerox agreed to grant to Fuji Xerox exclusive patent licenses covering Japan and nonexclusive licenses covering eight other Far Eastern countries. The term of the licenses at the Japanese government's suggestion was 10 years.

262. The exclusive license covering Japan was an essential inducement to Fuji to participate in the joint venture.

263. Under the terms of the joint venture agreement, Fuji Xerox and Fuji agreed to "grant back" to Rank Xerox rights in any patentable invention which Fuji Xerox or Fuji might make in xerography. The joint venture agreement called for a continuous flow of technology from Rank Xerox to Fuji Xerox, and Rank Xerox would have the right to use any developments and improvements resulting from this flow of technology.

The three companies, Xerox, Rank Xerox and Fuji Xerox, agreed to exchange patents and know-how among themselves and to refuse to grant such information and know-how to any other firm.

264. Since the creation of Fuji Xerox, the flow of technology and know-how on xerography has been almost exclusively from Xerox to Fuji Xerox. In the early states of the joint venture, the technology and information was transmitted from Xerox to Rank Xerox, which in turn would sent it on to Fuji Xerox. The parties recognized, however, that this was not efficient and in 1970 changed the routing so that Xerox transmitted the technology directly to Fuji Xerox. With the technology and know-how which it has received from Xerox, Fuji Xerox has been able to manufacture xerographic copiers for distribution in Japan and the Far East. For example, Fuji Xerox developed its own 2200 Copier. The 2200 Copier was marketed only in Fuji Xerox' territory but not in the United States or Europe. Fuji Xerox was aided by Rank Xerox and Xerox in developing its products.

265. While Fuji Xerox owned 97 United States patents as to which Xerox had royalty-free licenses in the United States, neither Rank Xerox nor Xerox had received and used any significant patents or technology from Fuji Xerox or Fuji pursuant to the "grant back" provision of the joint venture agreement. Fuji Xerox provided Xerox with technical reports. In the overall scheme of development of Xerox equipment, Xerox had not acquired from Fuji Xerox technology of any significance.

266. In 1968 the original agreement establishing Fuji Xerox was renewed, with slight modifications, for a ten-year period. Xerox still does not compete with Fuji Xerox in Japan, nor does Fuji Xerox compete with Xerox in the United States.

267. Plaintiff has failed to demonstrate that Xerox has maintained its position in the copier/duplicator business by engaging in exclusionary marketing practices. Neither its pricing plans, nor its free trial policy, nor its rental policy was proved to have been an exclusionary marketing practice. I find all such were legitimate practices of the market place. More specifically, I find that Xerox did not adopt a policy of renting its machines for the purpose of frustrating competition or that any "rental environment" created an adverse effect on competition.

268. Over the years, Xerox has offered its customers a number of different pricing plans to meet competition.

(a) Modal pricing, first used on the Xerox 2400, was developed to assure Xerox would be competitive on short run-length work while competing with offset for the longer run-lengths.

(b) DP or duplicating plan pricing was adopted to compete better with offset.

(c) MUP was a response to the fleet plans of coated paper copier competitors, which were taking business away from Xerox.

(d) The DUO price plan was adopted to attract the medium run-length customer.

(e) DC or duplicating charge pricing was designed to compete better with offset. A variant of that price plan, DC-5, was designed to attract customers using very long run-lengths only three or four times a month.

(f) Tandem pricing was introduced to make Xerox' "first generation" high speed machines more competitive with the newer, feature-rich IBM and Kodak machines.

269. Xerox' price plans were not developed to frustrate or confuse its competition or its customers, but rather to compete in the marketplace.

Van Dyk failed to establish that it suffered injury with respect to any customer by reason of Xerox' alleged confusing pricing plans. These pricing plans did not have any adverse impact on Van Dyk's ability to make placements, nor did Van Dyk suffer any cancellations as a result thereof.

270. There is no evidence that any of Xerox' pricing plans caused its equipment to be leased or sold at below Xerox' costs.

271. Mrs. Hennessy of Van Dyk explained how, using Xerox invoices, she compared Xerox and Van Dyk prices for potential customers: "I could take the volume figure off the bill. . . . [A]nd I could arrive at what our price for that number of copies would be, and then they could just compare the bottom line."

272. Similarly, Mr. Getzler of Copy Lease testified that, using the information on Xerox invoices, "it is also perfectly possible, in fact, relatively simple" to calculate what a customer's costs would have been on other price plans. Getzler also testified that "after a while you could break the code [on the Xerox invoices], but it was quite difficult to read them without any great deal of practice."

273. The testimony of the witnesses on the issue of unmatched customer debits and credits was inconclusive. While initially maintaining that the problem resulted from the alleged confusing Xerox pricing system, they also acknowledged that there were numerous other causes.

274. Because of plaintiff's complaint about MUP, it is appropriate to treat it in detail. MUP was initiated on August 1, 1968 as a defensive strategy to meet competition from coated paper fleet plans. The plan was discontinued as of December 31, 1975.

275. Under the MUP plan, Xerox accounts were offered volume discount prices lower than Xerox' regular prices if they committed themselves to annual revenues with Xerox of at least

$480,000. MUP customers, however, also paid higher minimums per machine.

276. When MUP was initially introduced, it was offered selectively to customers, where competition was encountered, as Xerox' billing and other administrative systems could accommodate it. The administrative problems involved in billing MUP accounts were such that MUP billing was intially done by hand rather than through Xerox' computerized billing process. MUP was eventually offered to all eligible customers, but it required approximately 18 months to two years to complete that process. During that period, customers under the most severe competitive pressures were offered MUP first. By the time Van Dyk entered the market in 1973, all eligible customers had been offered MUP.

277. As of January 1, 1971, Xerox subdivided MUP into three discount categories—MUP A, MUP B, and MUP C. These plans offered varying discounts as the customer's commitment increased. The annual revenue commitment was $360,000 for MUP A, $480,000 for MUP B, and $960,000 for MUP C.

There were also monthly minimums for each machine under each plan, which minimums would have to be paid even though the total annual MUP minimum for all machines was achieved. In addition, volume discounts were applicable to each machine and per copy costs varied with usage on each machine.

278. It is of course true that there were Xerox copier placements under MUP which were less vulnerable to competition because reduction in total revenues paid to Xerox by a MUP customer could reduce total revenues below a minimum requirement of MUP and increase the customer's overall copying costs. However, there was no provision in Xerox' MUP contract which required the customer to obtain all of his copying and duplicating equipment from Xerox. Examples of MUP customers employing competitive equipment while they were on MUP include General Motors, Boeing, United States Steel, Sears Roebuck, and Ford Motor Company.

279. Further, Xerox' MUP customers have not been constrained from cancelling their MUP contracts (or downgrading to a lower MUP level) when they thought it desirable. Such cancellations and downgrading were often economically desirable because all or most competitive products were priced below Xerox' MUP prices.

Van Dyk contends that the majority of MUP customers solicited by it did not cancel their MUP contracts or downgrade to a lower level even though Van Dyk offered superior equipment at a lower price.

However, it failed to prove that a particular customer decided against a Van Dyk placement solely or largely because of MUP. It also failed to prove that such customers as it points to did in fact believe that the Van Dyk 4000 was superior to the equipment they were using.

280. A Xerox competitive report concerning the status of certain major accounts in early 1973 showed at that time seven cancellations of MUP contracts, one downgrade from MUP C to MUP B, two threatened cancellations or downgrades, and three MUP accounts obtaining substantial quantities of competitive equipment while remaining on MUP.

281. The activities of United States Steel in 1973-74, as previously described, are enlightening. United States Steel was a MUP C customer as of 1973, when it established a photocopy task force to survey cost-cutting opportunities. The task force concluded that all Xerox machines at United States Steel should be replaced by a variety of competitive products employing plain paper, coated paper and offset technologies. The fact that United States Steel would loss its MUP discount did not dissuade the task force from reaching that conclusion since the competitive equipment being acquired was less expensive than the Xerox equipment being replaced. Further, even MUP customers who did not intend to replace all Xerox equipment could save money by obtaining competitive equipment and use such savings to offset any lost discount on retained Xerox products.

282. The vast majority of MUP customers could replace a large amount of Xerox equipment without losing a discount.

283. In early answers to interrogatories in this case, Van Dyk claimed that it was harmed by MUP at 141 accounts.[2] Actually, only 80 of the accounts in question were on MUP pricing.

284. Of the 80 accounts, the vast majority could have obtained very substantial numbers of Van Dyk 4000's without losing their MUP discount. An analysis of the 200 account-years[3] for those accounts during the period when Van Dyk was in the marketplace shows that virtually all of the accounts could have taken significant numbers of Van Dyk 4000's. There was presented no credible evidence that, as to any of these, Van Dyk was turned away because of MUP. Given the knowledge of the field by Dr. Pollack and others at Van Dyk, it is clear that Van Dyk was capable of explaining to any potential customer that it could substitute a Van Dyk 4000 for Xerox equipment where, as Xerox demonstrated at trial, such could have been done without loss of discount. For example, eight of those 80 listed accounts are AT&T and its subsidiaries. Each could have replaced every 2400, 3600 and 7000 it had with a Van Dyk 4000 and nevertheless remained on the MUP C price plan.

285. Of the 26,801 Xerox 2400's, 3600's and 7000's shown in those 200 account-years, 22,484 (83.9%) could have been replaced without any loss of a MUP discount.

286. Several of the accounts at which Van Dyk claimed injury had one or more Van Dyk 4000's. Every one of those accounts could have taken substantially more Van Dyk 4000's without losing its MUP discount.

287. Those accounts where Van Dyk placed no equipment show that large numbers of Xerox 2400's, 3600's and 7000's could have been cancelled without affecting MUP discounts. There is no evidence to suggest that such accounts refused to

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[2] Van Dyk contends that its answers were filed on September 30, 1977, before Van Dyk had received copies of and analyzed Xerox' documents produced in this case and before Van Dyk had obtained any other discovery and that all of these accounts were large customers who were believed to be on some MUP plan.

[3] As Mr. Mulcahy explained, an account-year represents one MUP account or customer in a given year.

deal with Van Dyk simply because taking a few Van Dyk 4000's would cost them a MUP discount.

288. Of the 200 account-years reflected in Xerox' analysis, in 188 of them Van Dyk could have replaced 10 or more Xerox 2400's, 3600's and 7000's without the customer losing a discount, 10 being greater than the number of machines Van Dyk placed with any but a few of its largest accounts. Of the remaining 12 account-years, in one the account had only four of the above-described Xerox machines and could have replaced them all (New York Life, 1975). In five others, the accounts were on MUP for less than one year, an unreliable basis for calculations. Only in the remaining six account-years could it be argued that a MUP contract might have discouraged a customer from acquiring equipment from a manufacturer such as Van Dyk.[4] However, there is no evidence of record that any of these accounts in fact declined to acquire Van Dyk machines because of MUP.

289. It is Xerox' corporate policy to offer its machines only at published prices, and Xerox' sales representatives are not authorized to make special deals with customers when Xerox is threatened with a cancellation.

290. One of Van Dyk's customer witnesses, Mr. Stewart, confirmed that Xerox' policy against selective price cutting had been observed in his case, and that he had turned to competitive manufacturers as a result:

> I started to proceed to negotiate with the Xerox sales representative that I was working with at that time and trying to see if there were some means whereby we could get a rate adjustment or an adjustment in the manner in which we were using and paying for the machines that we had and since I was not able to accomplish anything in my negotiations and discussions with him, I had to start looking for alternative machines produced by other manufacturers.

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[4] As Xerox has noted, Van Dyk was handicapped too because some large corporations required that a prospective vendor be able to service their locations all across the country, and Van Dyk lacked such.

Mr. Stewart also testified that after the Xerox equipment was replaced with Van Dyk equipment, Xerox offered to reinstall its equipment at no cost and permit free trial periods ranging from 30 to 90 days in an effort to displace the Van Dyk equipment. However, this effort, unauthorized by Xerox, failed.

291. Similarly, Xerox refused to offer United States Steel a special "price based on their total volume", when approached by a United States Steel task force in August 1973. Instead, Xerox told United States Steel that it was already on Xerox' best published price plan.

292. Xerox' free trial policy is a sales tool designed to enable customers better to evaluate Xerox equipment and compare it to competitive equipment. That policy is consistent with industry practice and is not exclusionary in nature.

293. The purpose of Xerox free trial policy is to enable a customer to compare Xerox equipment to that of other manufacturers without making a commitment to lease or to buy it.

294. Free trials are common in the office equipment industry and among Xerox' competitors. IBM, Kodak, and coated paper copier companies all offer free trials. Mr. Russell, Van Dyk's San Francisco agent, testified that his corporation, which distributes coated paper copiers, offers customers free trials. Xerox' free trial policy was adopted because Xerox' competitors were offering free trials, and Xerox felt that it needed to respond.

295. Xerox' free trial corporate policy limits the duration of free trials: copier and duplicator trials may be granted only upon the written approval of branch managers for up to 10 business days, subject to a 10-day extension. Trial installations are prohibited where the same Xerox equipment has been in a trial or lease status within the previous twelve months.

296. The only evidence offered by Van Dyk with respect to Xerox' free trial policy was the testimony of the two witnesses from the California Department of Transportation, Messrs. Stewart and Hertzog. Their testimony is contradictory. Mr. Stewart recalls that a Xerox salesman offered to reinstall some

Xerox higher-volume machines for free trial periods of up to 90 days. Mr. Hertzog, however, recalls that the free trial offer involved only the collator section of a Xerox 7000. There is no evidence that the Department had previously been using such a collator system.

Aside from the conflicting testimony, I do not find that a single incident such as this is sufficient to indicate that corporate policy was other than that which I have found above.

297. Thus, it can be stated that Xerox has no policy under which a salesman may offer a customer a 90-day free trial. Violations of Xerox' free trial policy are matters for which Xerox employees are disciplined.

298. Xerox has approximately five thousand salesmen in the United States. They make over five million sales calls each year. The one incident in California involving a salesman who was subsequently fired by Xerox does not suggest his actions were in fact corporate policy.

299. Xerox' corporate policy is that Xerox' sales personnel will not disparage competitors' products or services. The company's belief is that Xerox can develop the best long-term relationship with customers by positive selling, stressing the advantages of Xerox.

300. If a Xerox employee violates the policy against disparagement, he or she is subject to disciplinary action, the nature of which depends upon the intent and severity of the offense.

301. There is evidence that Xerox salesmen made disparaging comments abou Van Dyk, found in the testimony of the two witnesses from the California Department of Transportation, and in the testimony of Mr. Holthaus from Ampex, to the effect that Xerox salesmen had commented upon Van Dyk's Chapter XI status and may have described Van Dyk as "bankrupt":

(a) Mr. Stewart, who had been informed by Van Dyk's dealer in San Francisco, Mr. Russell, that Van Dyk was in Chapter XI, corrected the Xerox employees who had told him

that Van Dyk was bankrupt, pointing out that Chapter XI is not a true bankruptcy situation.

(b) Mr. Holthaus dismissed the statement of a Xerox salesman from Chicago, saying that he was happy with Van Dyk.

302. Once Van Dyk filed its Chapter XI petition, it could not complain that the filing was mentioned by others.

303. Van Dyk's customers were made aware of the fact that Van Dyk had filed a petition in Chapter XI not by Xerox but by Van Dyk itself. Dr. Pollack testified that Van Dyk told its customers about its Chapter XI filing, and Mrs. Hennessy said that she discussed Van Dyk's Chapter XI proceeding with all of her customers.

304. While there is evidence of three alleged disparagement incidents involving Xerox personnel, there were several instances of SCM disparagement of Van Dyk. In any event, Van Kyk proved no damages as a result of Xerox' alleged disparagement.

305. Since Van Dyk dropped the allegations in its complaint with respect to supplies, the only relevance of evidence of the alleged policy of Xerox against selling supplies to resellers would be that it was intended to or did have an exclusionary effect on competition in the marketing of copier/duplicators. The evidence demonstrates that there was a policy pursued by Xerox against selling supplies to resellers.

306. Van Dyk has failed to sustain its charge that the policy had any impact on the leasing of equipment by third-party leasing companies or the marketing of equipment by any other competitors of Xerox.

(a) Copy Lease's business was not hurt by its inability to purchase supplies from Xerox.

(b) Van Dyk was not damaged by Xerox' policy against selling supplies to resellers nor was it deterred from entering the market by the existence of the policy.

307. Neither the announcement by Xerox of a machine designated the Xerox 4000, nor the timing of such announcement, was intended to make it more difficult for Van Dyk to market the Van Dyk 4000.

308. During the 1950's, Xerox employed such secondary trade names as "Copyflo," only to conclude that such names detracted from the basic trade name "Xerox." Accordingly, it was determined that the copiers which were later named the Models 914 and 813 should receive numerical designations. Once this basic decision was made, the numbers 914 and 813 were selected because they corresponded with the copy size that could be produced by the machines. The subsequently introduced Model 2400, which made the same copy size as the 914, received a numerical designation which corresponded with its rated speed per hour, as did the Model 3600.

309. The next machine to be introduced after the 3600 was the Model 7000, which had the same rated speed as the 3600, but which possessed reduction capability. Faced with the need to select a name for this machine, Xerox' management decided that the only feasible course was to adopt arbitrary numerical designations for this and succeeding models. It was contemplated that lower numbers would be used for the smaller machines and higher numbers for the larger, faster machines. It was on this basis that the Model 7000 was named in 1969, the smaller and slower Model 4000 was named in 1970, and all subsequent Xerox models have been named.

310. Mr. McColough, who had responsibility for approving the designation "Xerox 4000," had not heard of the Van Dyk 4000 at the time that he selected that name.

311. The Xerox 4000 was announced in New York two days before Xerox' annual meeting in May 1970. That meeting was attended by Dr. Pollack and Andrew Erchak of Van Dyk and by Robert Brennan of Mayflower Securities. During the question and answer period, Mr. Brennan asked whether Xerox had evaluated the potential impact of the Van Dyk 4000. As previously noted, Mr. McColough (and Mr. Hay, who then headed Xerox' Business Products Group) had not heard of the Van Dyk 4000.

312. The Xerox 4000 was not delivered to customers until July 1971 because of technical problems with the machine.

313. As previously noted, Xerox' practice of renting its copier/duplicators on a short-term, unilaterally cancellable basis was adopted in 1960 because of the uncertainty surrounding the introduction of Xerox' first automated copier/duplicator, the 914. Short-term rental continued through the 1960's and early 1970's to be the predominant basis upon which Xerox machines were placed with customers, because a substantial number of Xerox' customers preferred rental to outright purchase. There is no credible evidence that it was the "rental environment" which kept plain paper copiers out of the market in the 1960's and the evidence is to the effect that it did not serve to keep companies out of the market in the 1970's.

More specifically, Van Dyk came into the market in 1973 as a result of planning during the latter 1960's by management thoroughly familiar with the market and confident the "rental environment" would promote rather than hinder its success in that market. The so-called "rental environment" was thus neither created nor maintained for the purpose of inhibiting competition.

314. After the Little report and IBM's rejection in 1958 of the manufacturing and marketing of the Xerox 914, Xerox decided to market the 914 on its own. Because of legitimate business reasons, Xerox decided to rent the 914 on a short-term basis, unilaterally cancellable by the customer, the better to obtain a place in the marketplace.

315. The short-term, unilaterally cancellable lease has continued to be the vehicle under which most Xerox customers acquire Xerox equipment, even though Xerox has offered to its customers the option of purchasing rather than leasing each machine which it has manufactured.

316. Continued customer preference for rental as opposed to outright sale was and is due in large part to the desire of customers to avoid long-term commitments which would prevent them from replacing their equipment with new and improved models. This customer desire is reflected in many

other consumer areas and accounts to a great degree for the growth of leasing companies.

317. By the early 1970's, the pace of technological change had decreased, and customers became less fearful of the risk of technological obsolescence. In addition, Japanese manufacturers of xerographic plain paper copiers emphasized the sale of their relatively low cost machines. As a consequence, a greater willingness to purchase Xerox' equipment developed in the 1970's. Indeed, in the words of the Dataquest expert, David Jorgensen, "the marketplace demanded it." The State of California, for example, adopted a strong policy favoring purchase over rental in 1975 or 1976, as was attested by plaintiff's witness, Robert Stewart, a State of California employee. The purchase option became particularly popular at the "lower end" of the market where the investment required to purchase a machine was less than at the higher end.

Indeed, Xerox embarked upon an outright sales strategy. Soon afterwards, significant sales of Xerox' 2400, 3600 and 7000 family of copiers occurred. Between 1974 and 1975 there was a 185% increase in the sales of the Xerox 7000. At the same time sales of depreciated 2400's increased by 104% and sales of depreciated 3600's increased by 94%.

Thus, at the time Van Dyk came on the market, and thereafter, it could no longer be said that there existed only a "rental environment."

318. In 1974 or 1975, Xerox began to stress the sales option and lowered its sales prices. Xerox also began to offer a financing plan which permitted the customer to finance the purchase of its machines, through Xerox, over a period of years. The result has been that at the present time approximately 20% of Xerox' placements are on an outright sale basis. Xerox also for the first time in 1975 and 1976 began to offer one- and two-year leasing plans, respectively, in response to similar plans being offered by IBM and others.

319. Thus I find that Xerox' practice of renting machines was adopted to facilitate Xerox' entry into the copier/duplicator business, and renting continued to be the predominant mode of marketing throughout the early 1970's in

response to consumer demand. When in 1974 and 1975 Xerox began to promote outright sale more aggressively, it did so in response to consumer demand as well as competitive pressures.

320. Xerox' practice of short-term leasing of copier/duplicators, while profitable to Xerox, has never presented a barrier to effective competition either from new entrants or from established competitors. On the contrary, the so-called rental environment has facilitated new entry, just as it facilitated Xerox' initial entry into the field in 1960.

Van Dyk has failed to prove that the market was "conditioned" to rent so that a company desiring to sell plain paper copiers could not do so, notwithstanding an advantageous sales price was made available to a customer. By the time Van Dyk came on the market it had been demonstrated, as it continues to be demonstrated, that, given an advantageous price, there are companies which would in fact purchase rather than rent. On the other hand, it is also clear that there are companies which find it in their own self-interest to lease rather than buy items of capital equipment. To say that the latter are or were "conditioned" to do so, if by that it is meant that their management had somehow lost the ability to make rational decisions founded upon what was best for their companies, is a proposition that has not been proved and is rejected.

321. A number of companies entered the business of manufacturing and marketing xerographic plain paper copiers in the 1970's. These newcomers found it possible, as a result of Xerox' rentals on a short term basis, to compete with Xerox on a box-for-box basis and replace Xerox' machines at lower monthly rental rates than were then being offered by Xerox. Had the bulk of Xerox' machine placements been on the basis of outright sale during this period, new entrants such as IBM, Kodak and the distributors of other domestic and Japanese xerographic plain paper copiers may well have found it much more difficult to persuade customers to discard their Xerox machines and replace them with the new equipment.

322. Van Dyk failed to demonstrate that it ever sought to compete, or was prevented from competing, with Xerox on the basis of outright sale. In fact, Van Dyk adopted a rental policy

because it would facilitate its entry into the market. It advised its shareholders in its 1972 annual report as follows:

> We also decided on a rental rather than a sale program for the Van Dyk 4000. This not only helps to give us faster market penetration but assures continuing income in years to come. However, it does increase our initial requirements for outside funds until a sufficient income can be built up from rentals.

323. Van Dyk failed to demonstrate that Xerox' activities have had an adverse impact on Van Dyk's ability to market the Van Dyk 4000 or to obtain financing and failed to demonstrate any causal relationship between Xerox' patent policies, its relationship with Rank and Fuji, its marketing practices (including pricing and rental policies) or any other Xerox activities, and Van Dyk's present financial distress.

324. Xerox' patent portfolio did not deter or hinder the development or marketing of the Van Dyk 4000. Xerox patents did not prevent Van Dyk from obtaining financing.

325. The activities of Rank Xerox and Fuji Xerox have had no adverse effect on Van Dyk. The claim that Konishiroku refused to lend Van Dyk $5 million because of its concern about patents held by Xerox and Fuji Xerox in Japan and the Far East fails in that it appears that the potential loan was somehow derailed or forgotten, and never consummated, because of the entry of Van Dyk into an agreement with Apeco to merge.

326. Van Dyk failed to prove its contention that its failure to sell 600 international copier/duplicators to SCM was attributable to the patent licensing policies of Rank Xerox. Van Dyk failed to prove that SCM decided not to purchase international versions of the Van Dyk 4000 from Van Dyk because of concern about Rank Xerox patents. Van Dyk did not manufacture any international copier/duplicators which could have been sold to SCM for marketing overseas.

327. While it is obvious that the fact that Xerox was in the market had some impact upon Van Dyk's marketing of its 4000 machine, and that there would have been no such impact if Van Dyk had the market to itself, Van Dyk's management knew the

market, conceived of and applied a rental policy which, so far as the evidence shows, led to its being able to place its machines in competition with Xerox.

328. Except for a minor effort by Mrs. Gauntt's part-time activity, and a small direct sales force which operated in the New York City-New Jersey area, it was not until well into 1974 that Van Dyk had accumulated enough machines, in addition to those being supplied to SCM, to begin to pursue its own direct marketing program. In November of that year, Van Dyk began to enlarge its marketing program and placed Van Dyk 4000's in California and Arizona through dealers.

329. Notwithstanding its claims of having been injured by Xerox' marketing practices, Van Dyk's marketing program in 1975 was very successful. During the eight-month period from the time SCM cancelled its contract with Van Dyk until Van Dyk entered Chapter XI, Van Dyk averaged a net increase of 40 machine placements per month, tripling its population of machines placed with customers. Van Dyk began 1975 with 196 Van Dyk 4000's installed. When it entered Chapter XI in October, it had 550 machines installed.

330. A single Van Dyk dealer, Jack Russell in San Francisco, placed 112 Van Dyk 4000's in the nine-month period from late November 1974 until September 1975. This is consistent with Van Dyk's claim that its 4000 was a good piece of equipment. Notwithstanding the alleged exclusionary practices of Xerox, Mr. Russell found that he had no trouble making placements, and he was making new placements steadily up until Van Dyk's Chapter XI announcement. On April 25, 1975 Mr. Russell wrote: "Once our first shipment arrived and was placed we have not had any problems in obtaining orders."

331. Based upon Dr. Pollack's testimony, I find that Van Dyk "could have continued" to average a net increase of 40 machine placements per month. Van Dyk's marketing success had been achieved using only 20 or so active dealers. However, as Dr. Pollack testified, "there were hundreds of dealers that we could have contacted if we had time." Van Dyk "had a potentially large marketing organization through dealers, hundreds of dealers across the country. All we had to do to

implement that was to bring those dealers on board, which we started to."

332. I find that, as was admitted by Mr. Russell, Van Dyk's problems were not sales and marketing problems but rather "finance problems."

333. Van Dyk has conceded that certain of the Xerox practices challenged here had no direct adverse effect on Van Dyk. Van Dyk was not damaged by Xerox' policy against selling supplies to resellers, nor was it directly damaged by Xerox' elimination of customer credits during the early 1970's.

334. As to cancellations of Van Dyk equipment, Xerox' marketing practices were not responsible for such cancellations.

335. Van Dyk failed to establish the loss of a single machine placement because of Xerox' free trial policy.

336. As previously noted, the evidence offered in support of the claim that Xerox engaged in a program of supposed disparagement of Van Dyk was limited. I find that such comments had no negative impact upon Van Dyk placements.

337. Xerox' practice of renting its equipment on short-term leases did not prevent Van Dyk from making machine placements or from competing effectively with Xerox.

DAMAGES

338. Van Dyk's calculation of damages is flawed in that it was not related to a particular alleged illegal act or practice of Xerox.

339. Except as to Van Dyk's claim of damages of $2 million, resulting from Xerox' alleged illegal arrangements with Rank Xerox and Fuji Xerox, plaintiff's damage study contains no analysis as to how any alleged activity, including, for example, its various pricing plans, its patent structure and its rental policy affected Van Dyk. As to the $2 million claim, I have found that Van Dyk suffered no damages as a result of any arrangements between Xerox, Rank Xerox and Fuji Xerox.

340. As I have noted, Van Dyk has failed to prove that Xerox' alleged exclusionary practices prevented Van Dyk from obtaining financing. Additionally, Van Dyk has presented no analysis in its damage study of damages allegedly incurred by reason of its failure to obtain financing because of Xerox' alleged illegal activity.

Although plaintiff alleges that Xerox illegally "conditioned" the marketplace to acquiring machines on the basis of short-term leases, there is no analysis in the damage study that purports to measure damages attributable to such an alleged "conditioning."

341. Van Dyk calculated the total financing required to support Van Dyk's operations assumed under Dr. Colantoni's Calculation I at $37.5 to $40 million.

342. Van Dyk's expert in the field of financing and the money markets, Mr. Howard, testified that the higher of these two sums could have been raised but for the alleged illegal practices of Xerox. Dr. Colantoni necessarily had to and did assume that Van Dyk had access to sufficient funds to support the projected performance in his damage calculation.

343. I must reject Mr. Howard's opinion that Van Dyk would have been able to raise $37-$40 million but for the alleged illegal practices of Xerox. He did not give sufficient weight, in making his prediction, to Van Dyk's management structure, including its management's quality and depth, and to the fact that Van Dyk's largest previous public offering was $3.6 million in 1972. He also failed to give sufficient consideration that a lender would be affected by certain financial reverses sustained by Van Dyk as a result of its problems with Mayflower, Apeco and SCM. Moreover, his analysis gave insufficient weight to the nature of the market with strong competition developing not only from Xerox equipment but from IBM and Eastman Kodak, and from paper copiers and offset.

Additionally, the comparisons he made with other companies were not rationally based, in that the companies to which he compared Van Dyk were fundamentally different as were their markets; thus, their ability to raise money furnished

no basis for Mr. Howard's conclusion that Van Dyk could have raised the sums stated by him.

Of the nine companies listed by Mr. Howard in his report, only five are shown to have raised more than $7 million in 1972. Two of those five are shown to have had very substantial revenues in the immediately preceding year (one over $4 million, the other over $8 million, compared to Van Dyk's $976 thousand). Another was a common carrier communication system and still another was an investment company set up to fund cable television companies. Although Mr. Howard testified that each of these companies had a negative net worth in the year preceding the offering, the fact is that none of these companies had a negative net worth. It is also not so that all of the companies lost money in the year preceding the offering.

Further, by way of example, Van Dyk's and Mr. Howard's effort to analogize from Four Phase Systems, Inc.'s experience fails. There were significant differences between it and Van Dyk. Indeed, unless one is intimately familiar with a particular company, and its market structures and dynamics, it is a useless exercise to extrapolate its experience into comparisons such as Mr. Howard here attempted to make. Accordingly, I must reject his opinion as to Van Dyks ability to raise money in the financial market and, as well, any opinion or suggestion that Van Dyk's difficulties were caused by Xerox' actions.

344. Dr. Claude S. Colantoni is Chairman of the Accounting Department of the Wharton School of Finance and Commerce of the University of Pennsylvania. Dr. Colantoni's training and experience involve the application of analytical procedures and techniques to solving business problems. Dr. Colantoni has performed consultation services for various clients, including Brown & Williamson Tobacco Company, Esmark Corporation and the Pittsburgh School System. He has served as Assistant Professor in Industrial Administration and Economics at Purdue University and is the author or co-author of a number of published articles.

345. Dr. Colantoni is qualified as an expert in the field of accounting and management science. Management science involves the application of analytical procedures, statistical

procedures, and mathematical models to business problems for the purpose of solving those problems in an analytically rigorous manner.

346. Dr. Colantoni was assisted in his calculation of Van Dyk's damages by William Lanen, a Senior Economist on the staff of Mathtech, the technical research and consulting division of Mathematica, Inc. of Princeton, New Jersey.

347. Dr. Colantoni has no knowledge of or expertise in, the copier/duplicator industry. Dr. Colantoni was offered only as an expert in management science as well as in accounting.

348. Dr. Colantoni had no particular experience in marketing. Most of his career has been spent in colleges and universities. He has not taught marketing courses, and he has not written in marketing areas. None of his other consulting work has involved marketing strategies; none of it has involved market share analyses.

349. Prior to his work on this matter, Dr. Colantoni had no knowledge of the literature on the copying/duplicating industry, and he had not had any prior acquaintance with the organizations that authored the materials that were provided to him.

350. Dataquest, Inc. (Dataquest) of Menlo Park, California, founded in December 1971, is engaged in market research in the copying/duplicating industry.

351. Most of the major copying/duplicating companies in the world, as well as most of the major financial institutions in the United States, subscribe to the Dataquest's market research services.

352. Dataquest's services to its clients include market studies relating to machine populations, usage levels, revenues, competition, trends and other projections.

353. Information used by Dataquest is drawn from sources, including copying equipment users, representatives of client firms and publications. Industrial information is processed and evaluated in developing the material disseminated to the industry by Dataquest. However, as Mr. Jorgensen, a

Dataquest vice president, testified, with respect to certain facts relied on by Dr. Colantoni (machine populations for Xerox, IBM, and Kodak), he receives no data directly from those companies and must estimate these populations. His estimates for IBM and Kodak may be off by as much as 25%. His estimates for Xerox in 1977 were substantially incorrect.

354. Many industry clients and financial institutions rely upon Dataquest studies.

355. Xerox, Rank Xerox and Fuji Xerox are subscribers to Dataquest services; however, Xerox does not rely on Dataquest data.

356. Van Dyk's damage calculation was based on the difference between estimated profits accruing to Van Dyk under two assumptions:

a. Calculation I— Van Dyk's estimated pre-tax profits during the period 1972 through 1980 assuming that the alleged illegal conduct of Xerox did not occur.

b. Calculation II— Van Dyk's estimated pre-tax profits during the period 1973 through 1980 assuming that the alleged illegal conduct of Xerox did occur.

Van Dyk's damages were calculated as the difference between Calculation I and Calculation II, discounted to 1975 at the pre-tax capitalization rate of 25%.

357. The pre-tax capitalization rate of 25%, which applies to a combination of debt and equity, is a reasonable rate to apply to the damage projections.

358. In the damage projections, it was assumed that Van Dyk's rental and sales prices would remain constant in terms of 1975 dollars over the entire damage period. Similarly, cost data was corrected to remove the effects of inflation.

359. Calculation II does not represent actual Van Dyk performance. There are many factors that affect the business performance of a company. While Dr. Colantoni purported to allow for the effect of these other factors, I find that he did not do so.

360. Dr. Colantoni's approach as to Van Dyk 4000 placements necessarily must rest upon the validity of three central assumptions:

1. That the Van Dyk 4000 is equivalent to and directly competitive with the Kokak Ektaprint copiers and the IBM Copier III.

2. That the market penetration achieved by the Kodak and IBM machines in 1977 is instructive as to what the market penetration of the Van Dyk 4000 "would have been" in 1976.

3. That internal Xerox projections of the likely market penetration of the Van Dyk 4000 take into account alleged illegal practices of Xerox and do not take into account other factors affecting Van Dyk's placements.

361. With respect to the first assumption, there are substantial differences between the Van Dyk 4000 and the Kodak machines and the IBM Copier III.

362. The Kodak Ektaprint copiers have excellent copy quality, and Van Dyk has lost placements of the Van Dyk 4000 because of the better copy quality of the Kodak machine. Unlike the Van Dyk 4000, the Kodak machine has reduction capability, duplexing capability and automatic document handling capability; and it is the only machine on the market that provides automatic document stapling.

363. The IBM Copier III was also a much more advanced machine than the Van Dyk 4000. It had automatic duplexing capability and a document handler as standard features. While it had some reliability problems, it has better copy quality than the Van Dyk 4000, and it also offered reduction capability.

364. For his conclusion that the Van Dyk 4000 machine is essentially equivalent to, and in the same competitive market segment with, the Kodak and IBM machines, Dr. Colantoni relied primarily on a market subsegmentation chart distributed as a chart by Dataquest at a conference in Buck Hill Falls, Pennsylvania in 1977. However, as the author of the chart, Mr. Jorgensen, testified, anyone wishing to analyze the marketplace with any care would not rely on his very summary charts.

Subsegmentation is used by Dataquest as a convenience and does not take into account why customers may select one machine over another. As Mr. Jorgensen testified, the chart was not meant to indicate that the Van Dyk 4000 is directly competitive with the IBM Copier III or the Kodak Ektaprint machines. Dataquest has recently adopted a new market subsegmentation that puts the Kodak machines in a different market subsegment from the Van Dyk 4000.

365. Another source that Dr. Colantoni indicated he relied on for an analysis of the comparability of the Van Dyk 4000 with other machines was the Xerox Strategy Task Force document. However, as Dr. Colantoni admitted, that document does not rank the Kodak and IBM Copier III machines as equivalent to the Van Dyk 4000. In fact, that document ranks the IBM Copier III as superior to the Van Dyk 4000 "across almost all dimensions." It also ranks the Xerox 7000 as superior in the features category (though not in reliability and productivity) and it does not rank the Kodak machine at all. As to the document itself, while admissible as an admission against Xerox, Fed.R.Evid. 801(d)(2)(A), I have not given it much weight in view of plaintiff's not having called any Xerox witnesses to testify as to the composition of the document, its preparation, and what basic factors underlay its findings.

366. In drawing his conclusion that the Van Dyk 4000 is equivalent to the IBM Copier III and the Kodak machines, Dr. Colantoni did not consider machine features. I find that machine features such as reduction, document handling, duplexing, and sheet feed capability, none of which the Van Dyk 4000 has and all of which the Kodak and IBM machines have, are of great importance in the marketplace.

367. Reduction is a very important feature. The oversize size-for-size capability of the Van Dyk 4000 is not an adequate substitute for reduction. Van Dyk has experienced difficulty in placing Van Dyk 4000's because the machine lacks reduction capability, and Van Dyk has also experienced cancellations because of the machine's lack of reduction capability.

368. Document handling is also of great significance in the marketplace. A great deal of the effectiveness of the IBM

Copier II came from its document handler. All of Xerox' newer models have document handling capability—the Xerox 5400, the Xerox 3400, the Xerox 9200 and the Xerox 9400. Kodak and IBM both offer document handlers. Neither the IBM Copier II nor the IBM Copier III is available without a document handler. The Van Dyk 4000 does not have a document handler. In fact, there is evidence that Van Dyk suffered cancellations as a result of its lack of a document handler.

369. A third feature of importance in the the marketplace is duplexing, the ability to copy on both sides of a sheet of paper. Automatic duplexing was first introduced by Xerox in the Xerox 4000 and was considered by Xerox to be a very important feature. The Xerox 4000, Xerox 4500, Xerox 5400, and Xerox 9400 all have automatic duplexing capability as a standard feature. Both the Kodak Ektaprint machines and the IBM Copier III offer duplexing capability. The Van Dyk 4000 does not have a duplexing capability in any real sense. This lack has caused Van Dyk difficulty in making placements, and it has also been the cause of cancellations.

370. A fourth feature of importance in the marketplace is the ability of a machine to copy onto letterhead, transparencies, labels, prepunched paper, colored stock, and card stock. The Kodak Ektaprint machines, the IBM Copier III, as well as all the relevant Xerox machines, are sheet fed machines and therefore are capable of copying onto letterhead, transparencies, labels, prepunched paper, colored stock, and card stock. The Van Dyk 4000 does not have, in any real or effective sense, the ability to copy onto cut sheet. Ignoring this feature, as with the other features, results in a serious distortion of Dr. Colantoni's assumptions. This, too, has affected Van Dyk's ability to make placements and has caused cancellations.

371. As to Dr. Colantoni's second assumption, there is no basis in the record for concluding that Van Dyk could, under any circumstances, have expected to do as well in 1976 as either Kodak or IBM did in 1977; it is sheer speculation.

372. IBM and Kodak are very different companies from Van Dyk. Van Dyk did not have a comparable sales and

marketing organization or the large financial resources possessed by both IBM and Kodak.

373. Dr. Colantoni was not justified in concluding that "Van Dyk entered the plain paper copier market when Xerox was the only competitor," which he stated "would suggest an estimate of a share of the base in excess of what the average of what IBM or Kodak was able to accomplish." IBM in fact began marketing a plain paper copier in 1970 (the IBM Copier I) and introduced the IBM Copier II in 1972.

374. There is also no basis for Dr. Colantoni's third assumption that internal Xerox projections of Van Dyk placements took into account alleged illegal practices of Xerox and did not take into account any other factors that affected Van Dyk's performance.

375. According to Dr. Colantoni, the reason he used Calculation II rather than Van Dyk's actual performance as his "base case" was to factor out matters not attributable to Xerox. He testified:

> That is precisely the reason. We were attempting to avoid the problem of identifying each and every one of these potential factors that could influence the calculation of damages attributable to this, to the alleged practices of Xerox, and when we came upon this baseline approach, I did not do further investigations into what damages may or may not be attributable to all these other causes.

376. Dr. Colantoni relied on internal Xerox documents for his machine population projections for the purposes of Calculation II. He assumed, on the one hand, that internal Xerox documents would take into consideration any illegal practices by Xerox. Yet nothing in those documents reflects that any particular practices were in fact taken into account. On the other hand, there is nothing in the record that establishes that the documents did not take into account other factors that actually affected Van Dyk's performance. The Xerox document relied on by Dr. Colantoni for his projection of the Van Dyk's 4000's population rates the Van Dyk machine and others in light of its lack of features. Thus, on the one hand, the Calculation II projections are lower than the Calculation I

projections in part because they take into account the Van Dyk 4000's lack of features that Calculation I improperly neglects to take into account. On the other hand, Calculation I projections are high because they fail to take into account extraneous factors not attributable to Xerox that affected Van Dyk's performance.

377. Dr. Colantoni's damage study also relies in significant part on other assumptions that are not supported by the evidence.

378. Thus I find unsupported by any credible evidence Dr. Colantoni's assumption that production and marketing of the Van Dyk 4000 would have begun in 1972, rather than 1973, but for the alleged activities of Xerox.

379. The damage claim also assumes that the Van Dyk 4000 would have experienced a seven-year product "life cycle," that is, that the Van Dyk 4000 would continue to add to its total population for seven years. I find that this assumption is not valid. It is unsupported by any credible evidence.

380. I also find to be speculative Dr. Colantoni's assumption that the Van Dyk 8000 is a commercially viable machine and would have achieved substantial placements, i.e., 6% of the total projected population of the high speed duplicator segment by 1980. No Van Dyk 8000's have yet been marketed successfully. Indeed, Van Dyk's chief engineer admitted that there was a problem with the optical scanning system in the prototype Van Dyk 8000 that was demonstrated to the court. The Van Dyk is also lacking in features and capabilities so that, even if marketable, it is unlikely it could have competed successfully with such Xerox equipment as the Xerox 9200/9400. Dr. Colantoni's projection of the population of Xerox 9200-9400 machines in 1980, on which he relied for his projection of Van Dyk 8000 placements, is in error. Also highly speculative are Dr. Colantoni's assumptions about the monthly revenues, monthly copy volume, or monthly service costs that the Van Dyk 8000 would experience, when and if it came on the market.

I reject these assumptions.

381. Also without record support, and thus highly speculative, is Dr. Colantoni's assumption that Van Dyk would incur general and administrative expenses (G & A) and selling expenses at what I find was an unreasonably low level. For the purpose of projecting the G & A and selling expenses that Van Dyk would incur under his projections, Dr. Colantoni used three formulas that do not comport even with Van Dyk's actual experience. Xerox' own experience is substantially higher; Apeco's experience was substantially higher; and Van Dyk's own internal projections were higher. Van Dyk's own experience for 1976 and 1977, when adjusted to conform to the categories that Dr. Colantoni used in his analysis, disclosed that Van Dyk was experiencing G & A and selling expense in the neighborhood of 15% of revenues—twice as high as Dr. Colantoni's overall assumption—even though in Chapter XI.

I reject his assumptions in this area.

382. Dr. Colantoni also relied on some charts from Dataquest for other data critical to his analysis, which data proved to be wrong or suspect. He relied on the charts for his estimate of the 1976 population of "low-speed duplicators," but that population as disclosed in the charts was overstated. He relied on the charts for his estimate of the 1980 population of "high-speed duplicators," but that population projection was also overstated. He relied on a chart purporting to show the ratio of leased machines to sold machines, but that chart did not reflect the ratio in the population of low-speed duplicators, which is "quite different" from the ratio shown in the chart relied on by Dr. Colantoni. He relied on the charts for the estimate of IBM's and Kodak's placements in 1977, but the evidence is that those estimates could be off by as much as 25%. At the close of the case, as rebuttal, plaintiff presented through one of its employees a "revision" of Dr. Colantoni's calculations purporting to correct for several of these errors. The "corrections" made no adjustments in the several underlying assumptions that Dr. Colantoni had drawn and which I have covered. Substantively, the corrections attempted to calculate Van Dyk's market share even more precisely than had Dr. Colantoni. These "corrections" were neither reviewed nor approved by Dr. Colantoni. These "corrections" are rejected as unsound.

383. The population projections made by Dr. Colantoni for the Van Dyk 4000 under Calculation I are substantially inaccurate when compared to the overall population of machines reasonably interchangeable with the Van Dyk 4000. Thus they are rejected.

384. The Xerox 2400 population is not in the population of machines interchangeable with the Van Dyk 4000. Over two-thirds of the Xerox 2400 machines generate monthly revenues below the minimum monthly revenue established by Van Dyk for the Van Dyk 4000. The Xerox 2400 now serves a specialized kind of customer in a special segment of the market and does not compete directly with the Van Dyk 4000.

385. Because of its reduction capability, the Xerox 7000 is only marginally in the population of machines interchangeable with the Van Dyk 4000.

386. The machine most nearly equivalent to the Van Dyk 4000 is the Xerox 3600. However, even the Xerox 3600 has features that the Van Dyk 4000 does not have, such as manual duplexing, sheet feed, up to 50 bins of sorting, and a document handler available.

387. Moreover, even assuming that the Xerox 3600 and the one-third of the IBM Copier III and the Kodak Ektaprint machines that do not have reduction capability are interchangeable with the Van Dyk 4000, Dr. Colantoni's projections would give the Van Dyk 4000 nearly two-thirds of the total population of those machines, by 1976 and over 88% of that population in 1977, in the low-speed duplicator market. There is no credible evidence in the record for this highly optimistic assumption.

388. The Van Dyk damage claim is also flawed in that it presupposes the availability to Van Dyk of very substantial additional amounts of capital which, Van Dyk argues, it could have raised had it not been for Xerox' alleged illegal acts. I have already dealt with that claim. I find here that Van Dyk has not proved that it could have raised the sums mentioned, or even a fraction thereof, absent the alleged illegal practices of Xerox. Xerox' financial analyst Thomas Schroeder prepared a

series of *pro forma* financial statements based upon Dr. Colantoni's damage analysis. The Schroeder analysis, which is not disputed by Van Dyk, shows that, for Van Dyk to have achieved the profit levels projected in the damage analysis, Van Dyk would have had to raise $37.5 million in capital by 1975, including about $16 million in 1972.

389. Xerox presented Walter Kirson to testify with respect to Dr. Colantoni's report. Mr. Kirson was accepted without objection as an expert in product and business planning, with particular emphasis in financing. He has had extensive experience in the copier/duplicator industry. While he is a Xerox employee and his assignment prior to trial was to work on antitrust cases against Xerox, I regard him as a credible witness.

390. I find the Kirson calculation of Van Dyk's damages substantially accurate and accept it as closely approximating the true damage figure, even assuming, as I have refused to do, that Van Dyk would have been able to meet its capital requirements ($37.5 million by 1975, $16 million in 1972) as postulated by the Schroeder analysis.

391. Van Dyk claims $2 million on account of lost profits on lost foreign sales. The calculation is based on the number of machines (600) which SCM had indicated an interest in purchasing in late 1974. Van Dyk also claims to have received inquiries from other manufacturers and marketers of copying equipment, besides SCM, concerning foreign marketing of Van Dyk's equipment, but that concern was expressed by various of these firms about the alleged patent pool of the "cartel" as to which Van Dyk could, it states, give no assurances that the Van Dyk 4000 did not infringe European and Asian patents of the "cartel." Even had Van Dyk proved Xerox' establishment of, participation in, and control over the "cartel" and a resulting allocation of patent rights and division of world markets, it would not be entitled to recover on this claim. Its proofs fell short of establishing even that it had a reasonable prospect of selling the number of machines mentioned. Indeed, not one transaction was adequately supported by credible evidence of sufficient weight for me to find Van Dyk had proved that it would have consummated that transaction but for Xerox' alleged illegal acts.

392. Van Dyk's complaint and Dr. Colantoni's report also sought damages in connection with Van Dyk's toner and developer business. Plaintiff abandoned this claim before the start of trial.

Summary of Findings of Fact

I therefore hold:

a. The relevant geographical market is the United States.

b. The relevant product market as of Van Dyk's entry included copier/duplicators using xerographic plain paper, coated paper and offset technologies.

c. Xerox did not possess monopoly power in the relevant product market at the time of Van Dyk's entry.

d. Xerox has not acquired or maintained its market position by any exclusionary conduct. Instead, its position is based upon its research, its risk-taking and innovation, its inventiveness, and its vast expenditures to constantly improve its technology. While it has been and is an aggressive competitor, it has been a lawful competitor.

e. Van Dyk has failed to prove that Xerox unlawfully acquired patents in order to foreclose competition.

f. Xerox did not enter into an unlawful international cartel. The Rank Xerox and Fuji Xerox joint ventures were not unlawful, were not in restraint of trade, and were established by noncompetitors for legitimate business reasons. Rank and Fuji were not potential competitors of Xerox.

g. The Rank Xerox and Fuji joint venture agreements did not unreasonably restrain trade. The joint venture agreements did not constitute an unlawful patent pool; and Xerox did not selectively enforce its patents to protect Fuji Xerox.

h. Van Dyk was not injured by the alleged cartel. The Rank Xerox and Fuji Xerox joint ventures did not deter any company from doing business with Van Dyk, and Xerox' relationship with Rank Xerox and Fuji Xerox did not adversely affect Van Dyk's competitive position in the United States.

i. Xerox did not create or maintain a "rental only" environment for the purpose of frustrating competition. Thus, Xerox' rentals were short-term and reasonable and facilitated its entry into the market. Moreover, Xerox' rental policy did not preclude Van Dyk from selling rather than renting machines. Van Dyk decided on its own that rentals best served its purpose.

j. Xerox has not engaged in exclusionary marketing practices. Its pricing plans were not made deliberately confusing and did not adversely affect competition. Xerox did not employ MUP to exclude competition. Xerox did not selectively adopt an outright sales strategy to counter competition from Van Dyk. Finally, Xerox has not taken unfair advantage of Van Dyk's Chapter XI status.

k. Xerox is not guilty of an illegal attempt to monopolize. Van Dyk has continued to claim Xerox has attempted to monopolize a market made up of plain paper and coated paper copiers. I have found the market to also include offset. Van Dyk has failed to prove a specific intent to monopolize or "dangerous probability" of success.

l. Even if Xerox' practices were exclusionary and unlawful, Van Dyk has failed to establish that it was injured by any such conduct. There is no evidence that Van Dyk lost a single machine placement because of any unlawful conduct of Xerox. Van Dyk was not prevented from securing adequate financing by any unlawful conduct of Xerox.

m. Van Dyk has failed to prove that it was damaged by Xerox' alleged exclusionary acts. Moreover, even if its damages proof were taken at face value, it was vague and speculative and failed to relate particular acts to damages.

Moreover, its damage estimate is speculative in that its basic market share assumption is without support in the record, as are other factual assumptions made by Dr. Colantoni.

CONCLUSIONS OF LAW

In addition to those findings heretofore set forth which embody conclusions of law, I also conclude:

1. Market Definition:

a. Geographic: the United States.

b. Product: Applying the doctrine of *Smithkline Corp. v. Eli Lilly & Co.*, 575 F.2d 1056 (3d Cir.), *cert. denied*, 99 S.Ct. 123 (1978), and *Columbia Metal Culvert Co. v. Kaiser Aluminum*, 579 F.2d 20 (3d Cir.), *cert. denied*, 99 S.Ct. 214 (1978), as well as *Brown Shoe Company v. United States*, 370 U.S. 294 (1962), to the findings of facts in this case, the relevant product market at or about the time of Van Dyk's entry into the copier/duplicator marketplace consisted of plain and coated paper copiers and offset as used in the copier/duplicator market.

2. Monopoly Power:

Xerox' share of the relevant market at the time of Van Dyk's entry, approximately 35%, does not, under the circumstances here, reflect monopoly power under 15 U.S.C. § 2. It lacked "the power to control prices or exclude competition." *United States v. E. I. duPont de Nemours & Co.*, 351 U.S. 377, 391 (1956).

3. Xerox' position in the relevant market was and continues to be achieved and maintained by lawful competitive conduct, not by unlawful, anticompetitive or exclusionary conduct. *Cf. United States v. Grinnell Corp.*, 384 U.S. 563, 570-71 (1966); *Berkey Photo, Inc. v. Eastman Kodak Company*, Nos. 1019, 1070 (2d Cir. June 25, 1979), slip op. at 3151-52. *See also Telex Corp. v. IBM Corp.*, 510 F2d 894, 927 (10th Cir.), *cert. dismissed*, 423 U.S. 802 (1975). Its position rested upon foresight, the willingness to take a risk with a new product even after it was rejected by IBM, the expenditure of vast sums for research, and the unceasing effort to improve its products. *United States v. E. I. duPont de Nemours & Co.*, 118 F.Supp. 41, 53 (D. Del. 1975), *aff'd*, 351 U.S. 377 (1956); *Cole v. Hughes Tool Co.*, 215 F.2d 924, 934 (10th Cir. 1954), *cert. denied sub nom. Ford v. Hughes Tool Co.*, 348 U.S. 927 (1955). Its industry position was neither willfully acquired nor maintained. Instead, it was achieved and maintained through growth and development as a consequence of a superior

product and business acumen. *United States v. Grinnell Corp., supra,* 834 U.S. at 570-71.

Xerox did not use its size in the industry for anticompetitive purposes nor did it have the purpose or intent to do so. While it competed aggressively, it competed fairly and lawfully. What made Xerox a strong competitor, at all times critical to this case, was its continuous upgrading and improvements in its equipment, its added features, and a wise and strong management team. Van Dyk, IBM, Eastman Kodak, the Japanese companies, in the plain paper field, and the coated paper and offset manufacturers, cannot complain about this. Indeed, sensibly Van Dyk does not complain about this. It is reflective of the best of our free marketplace.

5. Xerox' patent policy and program were not adopted or pursued with anticompetitive intent or purpose. Its accumulation of patents was protected conduct, the result of research efforts to develop and improve its products. It could and did no more than lawfully protect itself against competitor copying of its products and insure that it would not be blocked from the use of inventions which might prove useful in the future. *See Automatic Radio Manufacturing Co. v. Hazeltine Research, Inc.*, 339 U.S. 827, 834 (1950); *Cole v. Hughes Tool Co., supra;* U.S. Constitution, article I § 8, cl. 8.

Thus, Xerox is not guilty of "wrongly using the patent system to restrain trade," as charged by Van Dyk. Van Dyk Brief at 40. It did not accumulate patents simply in order to maintain dominance, as Van Dyk charges, whether by its arrangements with Battelle, Horizons, or others.

Its refusal to license competitors to manufacture xerographic plain paper copiers was justified and not unlawful.

Van Dyk has failed to prove its charge that Xerox accumulated patents for the purpose of monopolizing. *Cf. Hartford-Empire Co. v. United States,* 323 U.S. 386, 432-33 (1945); *and see* Sullivan, *Antitrust* (1977), § 179.a, at 510.

The "grant back" provisions were not violative of the antitrust laws, even if Xerox had monopoly power.

6. Xerox did not enter into an unlawful international cartel. Its arrangements with Rank, Rank Xerox, Fuji and Fuji Xerox did not result in the elimination of competition among dominant forces in an industry and did not embody agreements among major competitors, the purpose of which was to end, prevent, or avoid competition, but rather to reach commercial markets that might otherwise have been inaccessible.

The Rank Xerox and Fuji Xerox agreements, which were joint ventures, were undertaken for legitimate business reasons by companies who were neither actual nor potential competitors. Moreover, there were no price fixing or other anticompetitive agreements involved.

The Rank Xerox and Fuji Xerox joint venture agreements did not unreasonably restrain trade.

The joint venture agreements did not constitute an illegal patent pool. There were here no agreements, licensing or otherwise, among competitors or potential competitors to cross-license patents to fix prices, allocate exclusive territories, or otherwise eliminate competition.

Xerox did not receive patent rights of any importance from either Rank Xerox or Fuji Xerox under the grant back agreements, nor did Van Dyk sustain injury by reason of these agreements. Xerox did not selectively enforce its patents to protect Fuji Xerox.

7. Van Dyk did not sustain any injury as a result of the formation and conduct of the alleged cartel. The Rank Xerox and Fuji Xerox joint ventures did not result in any company foregoing doing business with Van Dyk. These agreements did not cause Konishiroku and Agfa-Gevaert to reject a business arrangement with Van Dyk. Van Dyk failed to prove its claim that the joint ventures prevented Van Dyk from selling 600 international versions of the Van Dyk 4000 to SCM.

Xerox' relationship with Rank Xerox and Fuji Xerox did not adversely affect Van Dyk's competitive ability. The joint ventures did not significantly enhance Xerox' market position in the United States.

8. Xerox did not create or maintain a "rental only" environment for the purpose of frustrating competition, nor has it had the effect of inhibiting competition. There is no evidence that customers were "conditioned," as Van Dyk claims, to rent rather than buy, or that because of Xerox' rental policy Van Dyk was forced to rent its machines. Its decision to rent was its own decision, arrived at because it was economically advantageous to Van Dyk to do so. Xerox' use of the rental policy did not result in Van Dyk's failure to obtain financing.

Xerox' purpose and intent in favoring a rental policy were lawful. The policy enabled Xerox to compete with the already established companies in the office copier field. Thus it was a lawful competitive device. Moreover, Xerox' short-term rentals facilitated the entry of new office copier firms into the market and facilitated the displacement by new companies, and by old companies with improved equipment, of Xerox equipment. All of this is reinforced by the many new companies, with plain paper copiers, entering the office copier market in the 1970's.

9. Van Dyk charges Xerox has engaged in the following alleged exclusionary marketing practices:

a. Creating a scheme of complex and confusing pricing plans to frustrate competition;

b. Employing a pricing plan (MUP) to frustrate competition from single-line competitors such as Van Dyk;

e. Establishing a free-trial policy;

d. Abandonment of the alleged "rental only" policy and adopting on a selective basis a new "outright sale strategy";

e. Advising customers of Van Dyk's financial difficulties. Even if Xerox had monopoly power, as charged by Van Dyk, it is not prohibited from competing aggressively but fairly. *Telex Corp. v. IBM, 510 F.2d 894, 927 (10th Cir.), cert. dismissed,* 423 U.S. 802 (1975). Xerox' pricing plans were not made deliberately confusing and did not adversely affect competition. They were adopted in good faith to meet competition, reach new customers, and create new uses for Xerox equipment, all economically sound and lawful reasons. Van Dyk failed to sustain its charge that customers and competitors were so

puzzled by Xerox' price plans that Xerox' prices could not be compared with the competitors'.

Xerox did not use MUP to exclude competition, neither as a means of linking its products nor to suppress competition, and Van Dyk failed to prove that MUP prevented Van Dyk from placing its 4000 with customers. Xerox did not selectively adopt an outright sales strategy to counter competition from Van Dyk.

Xerox did not, as a matter of corporate policy, take advantage unfairly of Van Dyk's Chapter XI status; and Van Dyk failed to show any injury resulting from the few instances of disparagement proved to have been committed by Xerox' employees acting on their own, in violation of corporate policy.

10. Xerox did not unlawfully attempt to monopolize a market consisting of both coated paper and xerographic plain paper copiers. There was proved here neither a specific intent by Xerox to monopolize nor a dangerous probability of success. *Hiland Dairy, Inc. v. Kroger Co.,* 402 F.2d 968,975 (8th Cir. 1968), *cert. denied,* 395 U.S. 961 (1969); *and see Coleman Motor Co. v. Chrysler Corp.,* 525 F.2d 1338, 1348 (3d Cir. 1975).

As stated at an earlier juncture, the relevant product market consisted of not only coated and paper copiers, but offset as well, at all critical times, and particularly at the time of entry of Van Dyk into the market. The entire trend in the relevant market is toward more vigorous competition rather than less.

11. Van Dyk failed to establish that it was injured by any unlawful conduct of Xerox. 15 U.S.C. § 15; *Sound Ship Building Corp. v. Bethlehem Steel Corp.,* 533 F.2d 96, 98-99 (3d Cir.), *cert. denied,* 429 U.S. 860 (1976); *and see Deaktor v. Fox Grocery Co.,* 475 F.2d 1112, 1116-17 (3d Cir.),*cert. denied,* 414 U.S. 867 (1973).

Although the antitrust laws afford latitude in allowing the factfinder to calculate the "extent of the damages" where precise calculation is impossible, they do not allow recovery where there is no showing of cognizable injury. *Bigelow v. RKO*

Radio Pictures, Inc., 327 U.S. 251, 263-64 (1976); *Story Parchment Co. v. Paterson Parchment Paper Co.*, 282 U.S. 555, 562 (1931); and the plaintiff, in proving the fact of injury, must prove a direct and proximate causal connection between an alleged unlawful act and the plaintiff's alleged injury. Plaintiff here not only has failed to prove its claim that Xerox possessed monopoly power and that Xerox committed exclusionary anticompetitive practices, it has also failed to sustain its burden of proving that the damages it claims to have suffered were causally related to the alleged anticompetitive practices of Xerox.

Van Dyk failed to rule out, as causes of its alleged damages, other factors such as its difficulties with Mayflower, Apeco and SCM.

Van Dyk failed to show that it lost even a single machine placement because of any alleged exclusionary unlawful practice of Xerox, whether it be MUP, Xerox' pricing plans, or other alleged exclusionary practices. Van Dyk failed to prove that it was prevented from securing adequate financing by any alleged unlawful conduct of Xerox, whether it be the so-called "rental only" policy, Xerox' patent policy, or Xerox' other alleged exclusionary activities.

In fact, Van Dyk secured more than adequate financing through 1973; when it was unsuccessful in accomplishing financing, this was not attributable to Xerox' alleged exclusionary anticompetitive conduct.

12. Even if Xerox were to have been found to be guilty of violating Sections 1 or 2 of the Sherman Act, and guilty of the alleged illegal acts and practices charged by Van Dyk, the latter has failed to present evidence providing a sufficient basis for an award of damages in any event.

It cannot be said that the amount of Van Dyk's damages, if any, was proved to the point where the damages can be determined, not by speculation or guess, but by reasonable inference. *Story Parchment Co. v. Paterson Parchment Paper Co., supra,* 282 U.S. at 563; *Bigelow v. RKO Radio Pictures,*

Inc., 327 U.S. 251, 264 (1946); *Coleman Motor Co. v. Chrysler Corp. supra*, 525 F2d at 1353.

As previously noted, Van Dyk's damages proof was not calculated in terms of measuring the effects of any alleged illegal acts upon Van Dyk. In calculating the difference between Calculations I and II, the "damages" were not related to any specific alleged illegal practice of Xerox.

Moreover, Calculation I, which purports to be what Van Dyk's sales and earnings would have been but for the alleged illegal practices of Xerox, is flawed. Its assumptions are unsupported by credible evidence. I reject the assumption that Van Dyk would have performed as well in 1976 as Kodak and IBM did in 1977.

Calculation II is also flawed. Having noted that there are factors affecting business performance unrelated to this case, Dr. Colantoni determined that Calculation I projections should not be compared to Van Dyk's actual performance (which would be affected by such factors), but rather should be compared to another set of projections, Calculation II, which would, according to Dr. Colantoni, eliminate the effect of those other factors.

Thus, Calculation II, basically artificial, is founded upon the projection of Van Dyk's performance in the Xerox Strategy Task Force Report. This is on Dr. Colantoni's theory—unsupported by any testimonial or documentary analysis—that such a projection would have taken the alleged illegal activities into account but not the "other factors," thus eliminating them when Calculation I was compared with Calculation II.

The record is without evidence that the Strategy Task Force Report took the alleged exclusionary and illegal practices into account in developing their projection of what Van Dyk's performance would be. Moreover, there are elements of the Report which undercut Dr. Colantoni's assumption of equivalency of equipment. It was Van Dyk's burden to support its assumptions involving the report, not Xerox' to disprove them. *Locklin v. Day-Glo Color Corp.*, 429 F.2d 873, 879 (7th Cir.

1970), *cert. denied,* 400 U.S. 1020 (1971). Van Dyk's damages evidence was not sufficiently probative of the losses it claims to have sustained by reason of the alleged illegal acts of Xerox. Moreover, it failed to assure to a reasonable degree that its alleged damages, the difference between Calculation I and II, did not result from factors other than the alleged illegal acts of Xerox. *See Coleman Motor Corp. v. Chrysler Corp., supra,* 525 F.2d at 1352-53.

Dr. Colantoni's projection of Van Dyk's market share in 1976 is without sound evidential support and is rejected. Also rejected, for the same reason, are his assumptions of the seven-year life cycle, that Van Dyk would have begun manufacturing and marketing the Van Dyk 4000 in 1972 had it not been for Xerox' alleged illegal practices, and Van Dyk's projected general and administrative expenses and selling expenses.

Dr. Colantoni's prediction as to the Van Dyk 8000 is also rejected, as to its market, its success, and damages attributable to Xerox' alleged illegal acts.

Also rejected is Dr. Colantoni's projection of losses with respect to an "international" machine. This projection is without credible record support.

Conclusion

Based upon the foregoing Findings of Fact and Conclusions of Law, judgment will be entered in favor of Xerox and against Van Dyk, with costs.

Frederick B. Lacey
United States District Judge

Dated: August 20, 1979

APPENDIX C

UNITED STATES DISTRICT COURT

DISTRICT OF NEW JERSEY

VAN DYK RESEARCH CORPORATION,
Plaintiff,
v.
XEROX CORPORATION,
Defendant.

Civil #75-419

ORDER

This matter having been tried before this court sitting without a jury;

IT IS HEREBY ORDERED AND ADJUDGED, in accordance with Findings of Fact and Conclusions of Law filed herewith, that judgment be and is entered in favor of defendant and against the plaintiff, with costs.

FREDERICK B. LACEY

Frederick B. Lacey
United States District Judge

Dated: August 20, 1979

APPENDIX D

United States Court of Appeals

FOR THE THIRD CIRCUIT

No. 79-2422

VAN DYK RESEARCH CORPORATION, a body corporate of the State of New Jersey,

Appellant

vs.

XEROX CORPORATION, a body corporate of the State of New Jersey

(D. C. Civil No. 75-0419)

ON APPEAL FROM THE UNITED STATES DISTRICT COURT FOR THE — DISTRICT OF NEW JERSEY

Present: HUNTER, WEIS and SLOVITER, *Circuit Judges*

JUDGMENT

This cause came on to be heard on the record from the United States District Court for the — District of New Jersey and was argued by counsel on June 11, 1980.

On consideration whereof, it is now here ordered and adjudged by this Court that the judgment of the said District Court, filed August 20, 1979, be, and the same is hereby affirmed. Costs taxed against appellant.

ATTEST:

SALLY MRVOS

CLERK

SEPTEMBER 30, 1980

APPENDIX E

United States Court of Appeals

FOR THE THIRD CIRCUIT

No. 79-2422

VAN DYK RESEARCH CORPORATION, a body corporate of the State of New Jersey,

Appellant

v.

XEROX CORPORATION, a body corporate of the State of New Jersey,

Appellee.

SUR PETITION FOR REHEARING

Present: SEITZ, *Chief Judge,* ALDISERT, ADAMS, GIBBONS, ROSENN, HUNTER, WEIS, GARTH, HIGGINBOTHAM, and SLOVITER, *Circuit Judges.*

The petition for rehearing filed by

VAN DYK RESEARCH CORPORATION, *Appellant*

in the above entitled case having been submitted to the judges who participated in the decision of this court and to all the other available circuit judges of the circuit in regular active service, and no judge who concurred in the decision having asked for rehearing, and a majority of the circuit judges of the circuit in regular active service not having voted for rehearing by the court in banc, the petition for rehearing is denied.

By the Court,

WEIS

Judge

Dated: October 30, 1980